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The Projective Motor Test: A Validation Study [1]

MAURICE RAPKIN, PH.D.
Los Angeles Psychological Service Center

INTRODUCTION

The Projective Motor Test, a new projective technique, was developed in 1947 by Rapkin and Wheeler, and followed from interest in the neuromuscular correlates of psychological structure suggested by the work of Reich (1942), Klopfer (1942), Rapaport (1946), Bender (1938), Allport and Vernon (1933) and others.

The test may be described as a paper-and-pencil graphic motor test. In it, the subject first is asked to draw a symbol in response to a stimulus word. Forty such words are presented serially. This is followed by a series of operations designed to explore the subject's characteristic attitudes and methods of handling a variety of tasks, all centered around the original symbol. In its preliminary use, it was felt that the test yielded comprehensive personality descriptions which corroborated or added to those obtained from the standard psychodiagnostic methods then in use. This validation study was planned to evaluate this clinical impression.

[1] The author wishes to express his deep appreciation for the personal and theoretical contributions made to this study by Professors Georgene Seward and J. P. Guilford of the University of Southern California; by Drs. H. M. Grayson, M. M. Meyer and F. Kirkner of the Veterans Administration; by Dr. B. Klopfer, consultant to the V.A.; and by his colleagues Drs. W. M. Wheeler, D. Grossman, and G. Brackbill. He is also grateful to the following members of the staff of the Los Angeles V. A. Mental Hygiene Clinic who served as therapist-judges: Dr. M. R. Harris, Dr. A. Goldberg, Mr. J. Hart, Mr. H. Lindt, Miss H. E. Brown, and Miss E. Gordon.

In general, the validation of projective techniques is a difficult process. Vernon (1936) suggested that the blind - matching technique would lend itself to validation studies in this field. Cronbach (1948) pointed out the limitations of Vernon's method and proposed a modification. This yielded more accurate information about the validity of the entire personality description used in the matching process, as well as about the separate statements made in each description. However, the design was extremely cumbersome.

METHOD AND PROCEDURE

The method used in this study was a modification of the blind-matching method and has several advantages. In Vernon's method, N personality descriptions derived from the test are matched with N personality descriptions obtained from competent judges. Semantic errors are possible in writing both descriptions. In the present method, instead of personality descriptions written by competent judges, the judges were therapists who matched the test interpretations with their knowledge of their own patients. This design also made possible two more operations, namely, "classification" and rating." In classification, the therapist categorized the accuracy of each statement in the test interpretation. In rating, the experimenter rated all the patients and the therapist rated each of his patients independently on the same graphic rating scales. Thus, the objectives outlined by Cronbach, namely, validation of both overall descriptions

and evaluation of its parts, was achieved. Although the present measures were not as accurate as those derivable by his methods, they were administratively more feasible to obtain.

The study was done in an outpatient mental hygiene clinic setting. The basic plan was for six therapists each to refer for testing six of their patients whom they knew well. The "average" patient was a 30 year old World War II veteran, was in college under the G.I. Bill, and was working part-time. A wide variety of clinical disorders was represented.

The six groups were tested and personality descriptions written in the pattern shown below in order to ascertain the effect of personal contact of the experimenter with the patient on writing the personality descriptions, as well as to compare the individual versus group administration.

Group	*Test administrator*	*Test interpreter*	*Type of administration*
Group I	Experimenter	Experimenter	Individual
Group II	Experimenter	Experimenter	Individual
Group III	Experimenter	Experimenter	Individual
Group IV	Experimenter	*Psychologist I*	Individual
Group V	*Psychologist II*	Experimenter	Individual
Group VI	Experimenter	Experimenter	*Group*

Following is a more detailed description of the three parts of the study, namely, *matching, classification,* and *rating.*

Part I. Matching

The plan for matching was to present each judge (therapist) with the anonymous personality descriptions of his patients (derived from the PM protocol). In order to provide a clearer picture of the process it will be necessary to describe the personality descriptions and how they were arrived at.

Personality descriptions. A potentially serious weakness of this type of matching experiment is that the judge may make his identification using a bit of unimportant but identifying data. Therefore it was necessary carefully to avoid references to such things as marital status, occupation, age, schooling, duration of therapy, etc., all of which was known to the experimenter. Since even the length of a freely-written report might provide such a clue, it was decided to prepare a standard outline. This outline was in two parts, called "Qualitative Report" and "Content Report." Separate statements were made about each area covered under these two headings. A summary statement was included to catch highlights which might otherwise be lost by a rigid adherence to the formal outline.

The "Qualitative Report" is concerned with the more "structural" aspects of personality. The inferences drawn from the test protocol are formulated according to a personality theory derived essentially from Freud, Rorschach and Klopfer and modified by hypotheses based on work with the PM Test. This report corresponds roughly to information obtainable from the Rorschach test.

The "Content Report" is based on the patient's attitudes towards his parents, people, himself, sex, aggression, dependency, the environment, etc. Direct expression of

his conscious attitudes was often obtained. Inferences were made about his unconscious or unexpressible attitudes. These inferences were strongly influenced by the work of Murray *et al.*, with the TAT, and Rogers *et al.*, in the field of client-centered and phenomenological theory. This type of report corresponds roughly to the information which is usually obtained from a TAT or a Sentence Completion test.

The matching was done by the therapist in three steps. First, he attempted to identify the Qualitative Report; second, the Content Report; and, finally, the combined report (Qualitative plus Content).

No standardized method of deriving interpretations was used. However, the following description and evaluation of the test, its rationale, and some samples, will suggest the bases for these interpretations.

Description of the PM. In brief, the test consists of the S being presented serially with the forty stimulus words. He is asked to produce rapidly a symbol or "doodle," and then to recall the stimulus words. The meaning of each symbol-word relationship is explored by a systematic inquiry. First, S explains the connection between his recalled word and his symbol. After correcting the misremembered words, S explains the original association. He is then asked to "show where you are in relation to your symbol." Following this, he rates the quality of each production, using his own criteria. And finally, he indicates the predominant affect-loading of each symbol.

In all, the S performs 14 distinct operations, most of which occur 40 times, so that some measure of intra-operation stability is possible. The operations range from the very routine one of drawing a number with a circle around it, to the very unusual ones of symbolizing words like "must." Several of these operations lend themselves to qualitative analysis. The inter-operation comparisons are obviously very numerous, but thus far have not been quantified.

The instructions for administering the test are standard and explicit. No special skills are necessary, and most of the recording is done by the S. In group administration, no recording is necessary.

Rationale. The "doodle" seems to tap the elusive, free imagery or fantasy thinking, while the inquiry sharpens and clarifies the concept. It is theorized that the test samples many of the processes involved in the genetic development of the subjective feeling of reality. A more-or-less vaguely perceived image (the "pre-doodle") is operated upon by the S with many different combinations of sensory and motor modalities, becoming more and more "real" with each operation. Auditory, kinesthetic, and visual modalities are explicitly involved, and touch, and taste implicitly (via stimulus words in these areas). The functions of memory, imagination, verbalization, etc., figure importantly in these processes.

The technique requires S to respond in a way to which he is, in the main, unaccustomed. That is, the expression of imaginal content through a graphic motor medium. By asking the S to "draw not a picture, but a symbol," it is expected that his characteristic neuromuscular tensions would be given a greater opportunity to influence the resultant symbolic expression. These muscular tensions, according to Reich (1942), Jacobson (1938), Deutsch (1942) *et al.*, are either the physiological concomitants of psychological tension or are closely associated with it.

The way that S responds to the injunction against drawing pictures is taken as a clue to his characteristic attitude toward the environment. If he accepts the instruction and draws abstracts, it is inferred that he tends to accept or be limited by environmental "realities," and conversely, that he operates more freely in the fantasy area. The quality of the doodle and his subsequent handling of it, are taken as indicators of his ability to integrate this fantasy. If, on the other hand, he rejects the instructions, and draws pictures, it is felt that he is a person who tends to impose structure on the environment. He is a "reality creator."

The doodle may be evaluated for both its content and formal characteristics. The content of a given doodle may be relatively meaningless, or it may be highly meaningful. It may be a picture (contrary to explicit instructions), or it may be a stereotyped symbol, or it may be highly abstract. Most of content interpretation comes from comparing and relating all the doodles. Sometimes a similar symbol or pattern will be used for different stimulus words without the S being aware of the similarity. As the test proceeds, he may become aware of the similarity, and even gain insights. Parenthetically, it might be mentioned that seldom does the S deny his own creation, even when such words as "love" and "death" are linked by a common symbol. He may, furthermore, react in characteristic ways to the knowledge of having revealed himself.

The formal aspects of the "doodle" yield information about what is thought to be the more basic aspects of the personality. Line, curve, open or closed, symmetry, balance, shading, flat or deep, are various possible classificational dimensions. Some lines are heavily or evenly drawn, others light or uneven. Some lines are tremulous, others bold and free. The use of the space is also interpreted. Some S's fill the entire space, others use only a small portion. Some disregard the boundary lines, and others cling to them, or utilize them as part of their symbol.

The assumption is made that the doodling process penetrates deeply into the personality structure. The subsequent steps, which grew from clinical observation of reactions to Phase I, yield information about S's methods of reclosing his defenses, and equally important, about his characteristic attitudes toward the environment, his parents, sex, himself and the other areas represented by the stimulus words.

After he has drawn 40 symbols, the S is given the instructions for Phase II (recall), as follows:

> Now begin at the beginning, and without skipping, write the word I gave you for each drawing. If you're not sure of the word, guess. To show that you're just guessing, make parentheses around it.

This phase is of special interest because S is asked to remember recent material without first having had a preliminary instruction to remember it. Here we have the opportunity to study the effect of emotional arousal on selective forgetting. Several factors contribute to this arousal of emotions. First, testing is, in itself, a threat. Then, there is the unstructured nature of the task, and also, the "unfairness of asking me to remember without first warning me. I could have done better if only I'd known." The fact that this is S's own creation, and he himself can't recognize it, may heighten inadequacy feelings.

Few S's have remembered all 40 words. The average number of correctly recalled words for a group (Rapkin 1949) of 70 graduate stu-

dents was 26. The misremberings provide a fruitful source of projective material. In the abovementioned study, an objective method for scoring Phase II was developed, but because there was no standardization, the scoring results in the present study could only be interpreted subjectively. Factors scored were the number of words correctly remembered, the closeness of the misremembered words, the associations to the misremembered words as indicators that S was able to recover the "feel" of the symbol, number of "guess marks," and their relation to the correctness of the remembered word, the number and location of original stimulus words applied to the wrong symbol, etc. These relationships suggested interpretations in terms of intellectual-emotional integration, reality testing methods, intellectual flexibility and level of aspiration.

The instructions for Phase III (Associations) are as follows:

Now show the relation between the word and the drawing by writing key words or phrases. Remember I told you 'hot' might be shown by a wavy line? Well, that might mean "heat wave" or "boiling water" or "a feeling of being hot." You might write one, two, or all three of these in order to explain how the symbol is connected to the word.

The ostensible purpose of this phase is to clarify the relationship between the word and symbol. In addition, associations are obtained to misremembered words. Thus, not only noted are those areas which are selectively forgotten, but it is possible to see, from the S's point of view how, and perhaps why, they are forgotten. Or, in other words, S explains his point of view toward both his conscious and repressed attitudes.

Phase IV (Corrections) requires a change of writing tools so that the examiner can later recreate the test sequence. The instructions for Part A are:

Now I'll read the words again. Where the word is different in any way—for example, if you wrote "watch" instead of "watching" write the word I gave you under your word. If you remembered the word correctly, check it.

When this is done, instructions are given for Part B:

Now explain the connection between the words you missed and the drawings, as you did before. If the connection is the same, for example, if you remembered the word "carefree" as "gay," and the connection is the same, then you'd write the word "same."

Having obtained associations to misremembered words in Phase III, S is confronted with the original stimuli and an explanation is encouraged. Often, the repressive mechanisms are effective enough to obscure, wholly or partially, the original connections, but sometimes enough is retained to enable S spontaneously to make what seem to be insightful connections.

A word about the instruction to check those words which are correct. In addition to keeping S actively participating, another sample is obtained (along with the circle around the set number) of S's motor behavior in a stereotyped, relatively non-threatening task. The handwriting, too, though to a lesser extent, lends itself to this type of evaluation.

For some S's, the next phase is considered the most difficult part of the test. Thus far, except for the original doodle, the tasks presented to S have been within his previous experience. But very few S's have been called upon to introspect in just this way.

The instructions for Phase V (Ego-Position) are:

Now show where you are in relation to your drawing. Let the blue pencil represent you.

For those S's who have difficulty making meaning out of these meagre instructions, there are two sets of operational definitions. Particularly in group administrations, it has been found that this part of the test arouses considerable hostility toward the examiner. One hypothesis as to the source of hostility is: S is forced to introspect in areas which are usually repressed, and such penetration is anxiety-provoking.

The instructions for Phase VI (Self Esteem) are:

> In this test there are no real standards by which to rate your drawings either "good" or "bad"—each one is what it is. What we would like you to do, then, is to make up your own set of standards just for this test, and rate the drawings by your own standards, etc.

The purpose here is twofold. By suggesting that he set his own standards, we get a freer indication of his reaction to the content of his productions. This adds to the qualitative evaluation of each set. At the same time, a quantifiable measure is obtained of what we may call "self-esteem."

For Phase VII (Affective Tone), the instructions read, in part:

> Some of the boxes might have had a good feeling to them and others might have suggested something unpleasant. Mark a "P" close to the number for the pleasant ones and a "U" for the unpleasant ones . . .

Here again the S provides an indicator of his point of view toward his own material, and thereby gives information of interpretative significance.

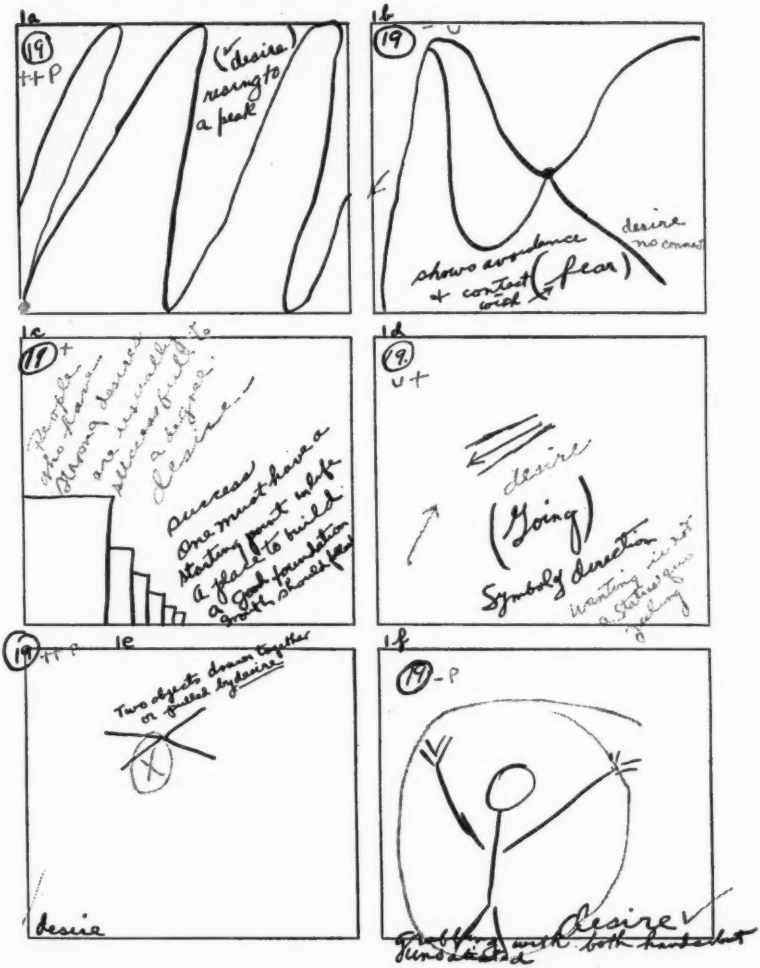
Two signatures are obtained during the test administration. W. Wolff (1948) provides a detailed account of the personality characteristics which are revealed in the signature. The first signature is obtained following Phase I when S is probably most disturbed by the test procedure. The second one follows Phase VII, when he has "recovered."

A word about "test shock." In common with most other projective techniques, the PM arouses some apprehensiveness in the S, probably due to his relationship to an authority (the test administrator) who will judge him for his shortcomings as revealed by the test. In the PM, once the S produces his fantasy material, not only is he *not* evaluated, but he is allowed to reestablish his defenses by explaining his attitudes and feelings about his productions. He shows the administrator the skeletons in his family closet, and finds them accepted without judgment. Many S's have expressed both a feeling of wonderment about the "insights" they gained in the testing process, and a feeling of relief or even exhilaration following the test. Several commented that at first they thought it was silly, but as it went on, it "made sense." Thus, rather than being traumatic, the test may be actually therapeutic.

Taking the record as a whole, personality patterns may be revealed in many different ways. For example, the same symbol may be used for several different words, or the misrememberings and associations may tie several words together, or a peculiar use of the "Ego-Position" symbol may be associated with several stimulus-words, or there may be markedly delayed reaction times for certain words.

How these patterns are interpreted depends on the personality theories to which one subscribes. In the record, one may find dominance-submission attitudes, introvertive vs. extratensive tendencies, relationships to physical and social environment, hostility patterns, de-

FIGURE 1—Various Responses to Stimulus Word "Desire." (Half-tone lines are from Phases IV, V, VI and VII)



fense mechanisms (projection, identification, isolation, etc.), fixation points in psychosexual development, etc.

To illustrate the test characteristics and method of interpretation more concretely, Figures 1, 2, and 3 are shown. Figure 1 shows a variety of possible responses to a stimulus word, in this case, the word "desire." Figures 2 and 3 each show three sets taken from a

given record to illustrate how the clues obtained from these samples of behavior can be fitted together to get a clearer picture of the whole personality.

The word "desire" often seems to tap libidinal feelings. If the reader will examine the six reactions (Figure 1) initiated by the stimulus word, he will find distinctive modes of handling the stimulus. The following comments will illustrate how "clinical intuitions" about the personality structure are developed and modified as the test performance proceeds phase by phase.

Phase I "Doodle." 1a and 1b suggest by their fluid lines and use of the full space an awareness of libidinal urges; 1c suggests a compulsive, repetitive way of coping with these feelings; 1d and 1e by use of small areas and angular lines, suggest an intellectualized approach to a painful area; 1f uses a stick figure suggesting egocentricity, poor ability to abstract, and tendency to disregard instructions, as well as an awareness of, and acceptance of, his own conflictual feelings.

Phase II "Recall." 1a indicates by parentheses that he was guessing at the stimulus word. He guessed correctly, suggesting that his repressing forces are not fully effective, and also that he does not trust his "intuitive" feelings in emotional areas; 1b guessed that the symbol stood for "fear," suggesting a relationship between fear and desire feelings; 1c misremembered but had confidence in his incorrect guess, suggesting a tendency toward autism under stress; 1d also guessed. Here the guess seems based not on the "feeling" of the symbol as much as on the pictographic aspects, suggesting lack of contact with deep inner feelings; 1e and 1f recalled correctly, suggesting adequate coping methods.

Phase III "Association." 1a, 1e, and 1f remembered the stimulus word, and their "association" is straightforward. The differences among them is sharpened by subsequent phases, especially "Ego-position." 1b elaborates on "fear;" 1c follows a compulsive drawing with a verbose, moralistic high-level-of-abstraction association; 1d also offers an intellectually adequate, but a de-emotionalized association.

Phase IV "Corrections." Three of the sets have corrections: 1b, 1c, 1d. 1b can offer no explanation for his symbol. The symbol seems almost a picture of the female sexual intercourse position, suggesting that this person has strong feelings that are close to consciousness but are ego-alien. 1c does a beautiful job of rationalizing his error. This suggests that his compulsive defenses are functioning well. 1d also explains, but the quality of the explanation is certainly much "poorer" than 1c.

This phase is especially rich in clues suggesting the patient's reactions in therapy, i.e., whether he would accept, rationalize or reject interpretations.

Phase V "Ego-Position." 1a is aware of his feelings but gives the impression of being frightened and overwhelmed by them. He seems to cower in the corner. 1b denies his feelings--places himself outside of the box. 1c has almost completely repressed his feelings, "inadvertantly" omitting to show his ego-position. He is not disturbed, as are 1b and 1d. 1d, in his original doodle, made his arrow pointing toward the left. This is usually interpreted as representing the person himself or his past. In this example, such interpretation is supported by the Ego-position. Together, they suggest that the person

is intellectually willing to face his somewhat ego-alien sex feelings. 1e consciously accepts his sex feelings which tend to be more ego-syntonic than 1d, 1f. The all-encompassing circle suggests a fuller acceptance of his conscious feelings than either 1d or 1e, and also supports the impression of egocentricity.

Phase VI "Self Esteem." This rating (++, +, −) is more useful when all 40 ratings in a record are considered.

Phase VII "Affective Tone." This rating (pleasant, unpleasant) is also more useful quantitatively. However, qualitatively, we get a relatively "objectified" or conscious statement by S about his feeling associated with the word "desire." 1a feels it to be pleasant, thus modifying the hypothesis in Phase V that he is overwhelmed by the immensity of his drives. 1b shows a consistent attitude of avoidance; 1c is neutral about it; 1d is willing to face the unpleasant feelings; 1e and 1f both find it pleasant.

Let us follow through a more detailed analysis of a single set—1c. In response to the word, he draws a repetitive, square, border-clinging symbol in one corner of the box. The corner chosen suggests most concern with the past. Thus, we hypothesize a compulsive, fairly rigid defense against early pleasure feelings.

Asked to recall the stimulus word, he misremembers "success." He does not use parentheses, indicating that the repression of the feeling and word has been effective. He is also bolder now (he uses the center of the box to write "success" at a rakish angle). He seems more comfortable with his usual defense modality, i.e., words, than with symbols.

In Phase III, he explains his symbol in language suggesting an abstract, idealistic, goal-driven attitude. The content anchors the conflict in the past. Note his careful observance of the boundaries, especially the last line.

In Phase IV, he is reminded of the stimulus word, and asked to explain the connection between "desire" and his symbol. This is throwing the spotlight directly on his defense system. He avoids the issue and chooses the easily available alternative of rationalizing the connection between "desire" and "success"—thus defending his original defense. (Contrast this with 1d, who follows the instruction.) Note his choice of words, and his verbal qualifications. This suggests that his defenses are functioning well. From the standpoint of therapy, we would predict a great deal of rationalization and ambivalence, intellectual insights and great difficulty in releasing his emotions. Note also that this time he writes over the boundaries. This might qualify our hypothesis about the rigidity of his defenses.

In Phase V, "Ego-Position," he "forgets" to include himself. This is consistent with the hypothesis that he has little or no access to his inner feelings, his "true" self, but is living at a more surface level. His intellectual abilities (we would place them in the 110-120 IQ range judging from his vocabulary) are utilized to a large extent in the service of his compulsive defense.

Phase VI. He rates his production +, meaning "good." And as for the feeling tone, (Phase VII), he is consciously neutral about "desire"—which is understandable as a successful defense against his pleasure-anxiety.

In this example, we found many clues pointing to a compulsive method of handling anxieties associated with early libidinal urges.

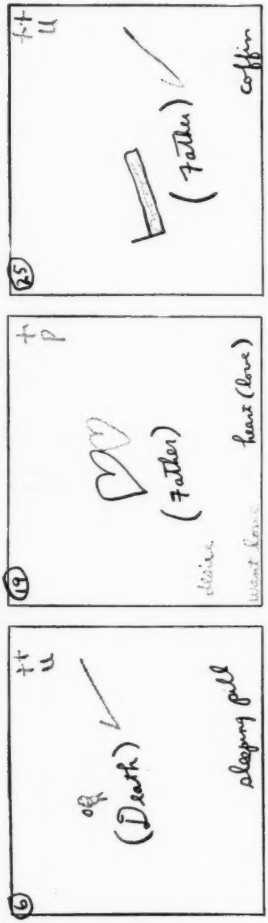


FIGURE 2—Comparisons of Sets 6, 19 and 25 from a Single Test Record. (Half-tone lines are from Phases IV, V, VI and VII)

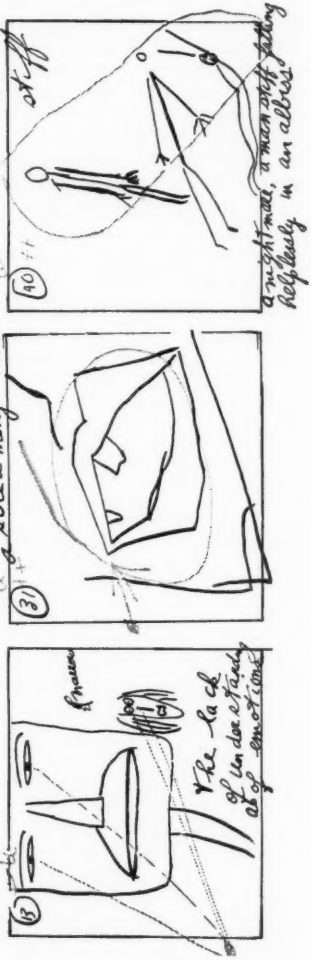


FIGURE 3—Comparisons of Sets 13, 31 and 40 from a Single Test Record. (Half-tone lines are from Phases IV, V, VI and VII)

We saw how this is manifested at various levels of personality operation.

Figure 2 illustrates the information that may be obtained by comparing several sets in the same record. Set 6—Death, Set 19—Desire, and Set 25—Father, are shown.

Content analysis. Set 6. He first drew a small circle. He guessed (correctly) that it represented death and explained that it was a sleeping pill. His Ego-position is shown by the little man with his mouth close to the pill. This set suggests suicidal preoccupation. Set 19—Desire, was shown by a heart symbol. He misrecalled it as "Father," explaining that it stood for love. When, in Phase IV, he

was given the original stimulus word, he explained that he wanted love—obviously from his father. His Ego-position symbol (a heart) is the same as the "desire—father" symbol, suggesting a close identification with his father. The nature of this identification is more fully shown by Set 25. Here he draws a coffin, and in Ego-position, places himself in it. Thus we have evidence of a conscious preoccupation with suicide as a means of getting close to his dead father in order to get love.

Qualitative analysis. The literalness of his symbols, his child-like Ego-positions, his scanty verbalizations, as revealed in Figure 2, all suggest poor ego-strength and inferior reality-testing ability. However, since he followed the test instructions satisfactorily, he seems capable at least of putting on a front, that is, of carrying on the routine activities of extra-mural living. He seems to be operating at a very immature, probably oral, level. Of course, this is a scanty outline, which could be filled in detail by seeing the entire record.[2]

Figure 3, similarly, shows three sets from a record. Each one alone gives many clues, but when taken together a consistent picture seems to emerge. The most prominent aspect of his personality seems to be the strength of his emotionalized attitudes. As a corollary, ego controls seem stabilized at a level lower than usual. That is, ego controls are present (as suggested by his ability to follow test instructions and to explain his original symbols), but they are pushed around by his strong feelings (as suggested by his utilizing usually bland words like "narrow" and "stiff" as vehicles of these feelings; by his overrunning the boundaries of each set; and by his misspelling of the word "abyss" in set 40; and by his Ego-positions).

This being the case, the content of his feelings as shown in the record can be taken almost at face value.

Content analysis. The three sets in Figure 3 were chosen to illustrate the state of agitation, hence most of the content may be found in the other sets. From these three, however, we make the following interpretations. Set 13—Narrow. The space-filling man and scrutinizing woman suggest the attitude and relative importance of his parents. Set 31—Pain. Showing a huge mouth with broken teeth, it suggests how he attempts to gain their attention. Set 40—Stiff. To most people this word suggests *immobility* and also sex (i.e. stiff penis). However, this S *moves* his figure, against the grain, as it were, of both the implied stasis and also the mechanical difficulty of showing motion in a drawing. Analysis of his nightmare suggests that his strong sex urges are terrifying to him.

Qualitative analysis. In addition to the qualities mentioned before, his drawings suggest agitation and motor tension. High intellectual capacity (from vocabulary and vivid imagery) is impaired by his surging emotional drives. Repression is poor, his sleep troubled by nightmares and his waking by almost uncontrollable impulses. He is over-responsive to environmental stimuli (his reaction to bland words). An aggressive rather than a passive dependence is suggested by pictographic and unconventional symbols and the strength of the

[2] As it happened, two weeks after the test was administered, the patient came to feel that he had been rejected by his male therapist. He went home and swallowed a handful of sleeping pills. Fortunately, he was found in time, and subsequently was institutionalized for further treatment.

lines. He suffers and is very willing to let the world know it. Insight is very good (Ego-positions).

These brief examples illustrate the method used in interpreting the experimental test protocols. It should be noted that the interpretations themselves are based on clinical judgments and on many as yet unverified hypotheses, and that the present study is aimed only at a gross evaluation of the instrument.

Statistical Results

Statistics on matching. Table I shows the results of matching Personality Descriptions. The matching was done in three steps. The "Number matched" column shows how many Descriptions were correctly matched as compared to the number to be matched. The next column, "Probability," shows the likelihood of such a matching occurring by chance, and is taken from Chapman's (1934) tables. As this author points out, the probability of a correct matching by chance is 1/n, or in this study, 1/6 or 1/7.

Using the formula:

$$\frac{\text{right}}{\text{right}+\text{wrong}} \times 100$$

to indicate a percentage of correct matching, we get the following validity indices:

Qualitative Report	70%
Content Report	84%
Combined Report	84%

The following interpretation is suggested. The matchings obtained in five of the six groups point unmistakably to a consistent relationship between the Personality Descriptions obtained from the PM test, and the therapists' concepts of the patient's personality obtained from an intimate knowledge gained in the therapeutic process. In group V the results are more equivocal. This group was tested by Psychologist II (not the author) and the protocols interpreted "blind" by the experimenter. This suggests that the clinical observation of the experimenter rather than just the protocol was responsible for the greater accuracy in the other groups. However, this suggestion is controverted by three lines of evidence: first, Group IV was tested individually by the experimenter and the protocols interpreted "blind" by Psychologist I. Excellent agreement was obtained. Second, Group VI was tested as a

Table I—Results of Therapists' Matching Their Patients With the Experimenter's Personality Descriptions

		Matching of Qualitative Report		Matching of Content Report		Matching of Combined Report	
Group Number	n	Number correctly matched	Probability**	Number correctly matched	Probability**	Number correctly matched	Probability**
I	6	6	.001	6	.001	6	.001
II	6	6	.001	4	.022	6	.001
III	6*	4	.022	6	.001	6	.001
IV	6	4	.022	6	.001	6	.001
V	6	2	.265	4	.022	3	.077
VI	7	4	.018	5	.004	4	.018
Total	37	26		31		31	

* The therapist had the descriptions of five of her own patients plus another borrowed from Group VI.

** The probability that such a number or a greater number of correct matchings could have occurred by chance.

group by the experimenter and clinical observations were accordingly minimal. Third, it was found that 4 of the 6 patients in Group V were diagnosed as "anxiety reaction." By contrast, the other groups all showed relatively varied diagnoses. Referring to Table II, we see that 84% of the statements were classified as "true," suggesting that the Personality Descriptions were fairly accurate. Perhaps the "qualitative" personality structure of these four "anxiety reaction" patients were sufficiently alike to make it more difficult to distinguish among them. Thus, the Qualitative matchings approached chance results, whereas the Content matchings were significant at the 2% level.

Statistics on classifying the statements made on the Personality Descriptions. Table II shows the percentage of the statements made by the experimenter which the therapist classified as "true" and "not true." Of 1207 statements made about the 36 patients, 110 were classified under the heading "have no information."

TABLE II—Percentage of Statements in Personality Descriptions as Classified by Therapists, Presented by Groups of Patients

Groups	n	Total number of statements classified	True*		Not true**	
			Number	%	Number	%
I	6	177	159	89	18	11
II	6	157	138	88	19	12
III	5	177	158	88	19	12
IV	6	159	154	97	5	3
V	6	183	155	84	28	16
VI	7	236	213	90	13	10
Grand total:		1089	977	90	103	10

* True categories include those that the therapists classified as "undoubtedly true" and "probably true."

** Not true categories include those that the therapists classified as "probably not true" and "undoubtedly false."

It can be seen in this table that the agreement between the experimenter and the therapists for the six groups varied from 84 per cent to 97 per cent. The group with the highest percentage of agreements (Group IV) was the group whose test protocols were interpreted "blind" by another psychologist. The group with the lowest percentage of agreements (Group V) was the group to whom the test was administered by another psychologist, and whose protocols were interpreted "blind" by the experimenter.

Tables III and IV contain other information obtained from the Personality Descriptions, arranged according to the areas of personality covered in the standard outline.

The following relationships may be observed from the tables:

1. The percentages of statements placed in the "true" category aver-

PART II. CLASSIFICATION

After the therapist had made his matchings, the personality descriptions were identified by the experimenter. The therapist then classified each statement in the description as either "undoubtedly true," "probably true," "probably not true," "undoubtedly false," or "have no information." The first two categories were taken as "true" and the second two as "not true" in summarizing the data.

aged 91 per cent and ranged from 85 to 100 per cent for the qualitative statements. The average for the Content report was 88 per cent and ranged from 76 to 100 per cent.

2. Of those "Summary Statements" which were classified, 100 per cent were in the "true" categories for both reports.

These data suggest that the statements were, on the whole, accurate. Although the attempt was made by the examiner to make a statement in each area covered by the formal outline for each patient, this was not always possible. However, a wide range of information was covered, and, from the data, all of the areas were fairly uniformly accurate.

Part III. Rating

The therapist and the experimenter independently rated each patient using graphic rating scales. These scales (the IRT Therapy Scales) were developed for this study with the intensive assistance of psychiatrists, psychologists and psychiatric social workers. The IRT (Insight, Reality Contact, and Therapeutic Recoverability) scales were chosen because of their importance in current thinking about the therapeutic process. Each of the three scales was made up of 12 five-step graphic rating subscales.

Table V shows the product-moment correlations between the experimenter's and the therapists' ratings. This was obtained by cor-

Table III—Percentage of Statements in Qualitative Personality Descriptions as Classified by Therapists Presented by Personality Areas

Areas	Total No. of statements classified	True*		Not true**	
		Number	%	Number	%
Intellectual					
Level	34	32	94	2	6
Control	32	27	85	5	15
Impairment	25	24	96	1	4
Defense					
Rigidity	35	32	92	3	8
Kinds	30	27	90	3	10
Quality	28	24	86	4	14
Anxiety	22	21	95	1	5
Prevalent emotional tone					
Pleasant	35	32	93	2	7
Lability	33	29	88	4	12
Availability	20	19	95	1	5
Insight					
How good	36	32	89	4	11
Unconscious	30	27	90	3	10
Integration	18	16	89	2	11
Reality contact					
How good	31	27	87	4	13
Summary statement	16	16	100	0	0
Total	425	386	91	39	9

* True categories include those that the therapists classified as "undoubtedly true" and "probably true."

** Not true categories include those that the therapists classified as "undoubtedly false" and "probably not true."

TABLE IV—Percentage of Statements in Content Personality Descriptions as Classified by Therapists Presented by Personality Areas

Areas	Total No. of statements classified	True* Number	True* %	Not true** Number	Not true** %
Parent Figures					
Conscious					
Mother	33	30	91	3	9
Father	31	29	93	2	6
Differentiation	18	16	89	2	11
Identification	19	17	89	2	11
Unconscious					
Mother	25	23	92	2	8
Father	18	17	95	1	5
Authority	14	13	93	1	7
Identification	9	9	100	0	0
Sex and People					
Conscious					
Heterosexual	29	23	80	6	20
Homosexual	30	26	86	4	13
Interpersonal relations	26	23	89	3	11
Dependency	22	17	77	5	23
Unconscious					
Heterosexual	22	21	96	1	4
Homosexual	24	22	92	2	2
Interpersonal relations	17	15	88	2	12
Dependency	12	11	93	1	7
Environment					
Conscious					
Threat	34	19	85	5	15
Aggression	38	34	89	4	11
Unconscious					
Threat	21	19	90	2	10
Aggression	24	22	92	2	8
Self					
Conscious					
Self Esteem	53	44	88	9	17
Guilt	27	24	89	3	11
Aspiration	25	22	88	3	12
Unconscious					
Self Esteem	26	20	77	6	23
Guilt	17	13	76	4	24
Aspiration	11	10	91	1	9
Summary Statement	16	16	100	0	0
Total	641	565	88	76	12

* True categories include those that the therapists classified as "undoubtedly true" and "probably true."

** Not true categories include those that the therapists classified as "undoubtedly false" and "probably not true."

relating the 36 pairs of ratings for all 12 subscales to yield 432 pairs for each scale. The ratings on all three scales showed a moderate but significant relationship. A more detailed description and analysis of these scales is made elsewhere (Rapkin 1949).

TABLE V—Correlation* of Experimenter's Versus Therapists' Ratings on the Three Preliminary Rating Scales**

(N = 432)†

Insight	"r"	Reality contact	"r"	Therapeutic Recoverability	"r"
12 Subscales Combined	.36‡	12 Subscales Combined	.32‡	12 Subscales Combined	.30‡

* Product-moment coefficients corrected for errors of coarse grouping.

** Twelve subscales in each scale were grouped together.

† Twelve subscales on 36 patients.

‡ An "r" of .12 is required for significance at the 1 per cent level, for an N of 432. It should be noted that these ratings are not entirely independent and therefore the true N is somewhat less than 432. There are at least 36 independent ratings and the limiting case would be an N of 36, which requires an "r" of .330 for significance at the 5 per cent level of confidence..

SUMMARY AND CONCLUSIONS

A validation study of the Projective Motor Test was carried out. Thirty-six male outpatients of a mental hygiene clinic were tested. Comprehensive personality reports were written, based on the protocols. These reports covered the two major areas usually covered by the Rorschach and the TAT. Each report, written in two parts, followed an outline and was composed of a series of separate statements. These reports were treated in two ways: (1) matching the reports as a whole, and (2) judging the accuracy of each separate statement.

1. In matching, the criterion was the therapist. Each of 6 therapists had referred 6 patients. The therapist was shown the anonymous reports of his patients and asked to identify each. On the combined reports, 4 therapists correctly identified 6 out of 6 (by chance such a number of correct matchings could be expected once in a thousand times). One therapist identified 3 out of 6 (chance expectancy: 8 times in a hundred). The last therapist identified 4 out of 7 (chance expectancy: 2 times in a hundred). On the combined report, a validity index of 84% was found.

2. The therapist was then asked to classify each separate statement into one of 5 categories: "Undoubtedly true," "probably true," "probably not true," "undoubtedly not true," and "have no information." Of the 1089 statements classified in the first 4 categories, 90% were in the 2 "true" categories.

3. As a further refinement of the capacity of the PM Test to elicit personality variables significant in the therapeutic process, 3 such variables were studied. Each variable ("Insight," "Reality Contact," "Therapeutic Recoverability") was objectively defined by 12 five-step subscales. The experimenter and the therapists independently filled out these scales. Moderate, but significant product-moment correlations between the experimenter's and therapists' ratings were found for all 3 scales taken as a whole (.36, .32, and .30, respectively).

4. The three sets of data showed that the PM yielded comprehensive and valid information about both the patient's personality structure and dynamics. It is felt that further development of the test is warranted.

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SYMPOSIUM:
Perceptual Structure in Pathology and Development

Some Remarks on the Place of Cognition in Ego Psychology [1]

FREDERICK WYATT, PH.D.

The most decisive events in the development of Psychology in our time were by all odds the introduction of dynamic psychology and of the holistic approach. All other concepts which we use at present in our formulations about personality in the process of adjustment, follow logically from these premises. Once we adopt as our principal working hypothesis the view of man as driven by needs and striving for goals – impelled by his biological substance to sustain tension, to manipulate tension, to reduce tension–all the other propositions of psychoanalysis seem to follow naturally (Hartmann and Kris 1945, Hartmann, Kris and Loewenstein 1946). The dynamic approach orients all inquiry toward the meaning which any situation, or state may have for the needs of the organism. From the junction of the organismic and the dynamic viewpoint stems the idea of psychological genesis, pointing to the effects of childhood experience as a determining force of motivation upon present-day behavior. The fundamental significance of conflict and anxiety or of structure and integration follows in a similar way, reaching its apex in the concept of the ego.

In the monumental discoveries of Sigmund Freud, to which the dynamic viewpoint in psychology is largely owed, the holistic approach was implied, one might say almost unconsciously. The relationship of the organism to the world in which it lives and to the demands that this world may impose upon it, lead to the construction of the ego only at a relatively late stage (Freud, S. 1927). The dynamic approach and the idea of an unconscious system as principal framework of observation were highly successful as fundamentals of theory and therapy alike. The investigators–at that time almost exclusively practicing therapists–for a long time were absorbed in uncovering the well-springs of behavior and in the tracing-back of today's qualms to the long-forgotten quarrels of childhood. The ego in Psychoanalysis hence was at first a borderline concept in more than one sense (Freud, S. 1947, Loewald 1951). It marked the boundary between the individual as a sensitive surface (Freud, S. 1947) and the environment, equally conceived as a dynamic front of demands and pressures. Yet in another sense the ego marked the borderline of the region that psychoanalysis had made the pinnacle of its systemic orientation. Indeed, man spent time reasoning but was it not that he frequently did so in order to conceal his affect? His contact with the external world was effected through perception–evidently to serve his instinctual needs. Thus the processes of consciousness were for quite some time secondary in accounting for incidence and quality of experience. Reasoning, memory, motor control and the other traditional functions of the conscious self were somewhat perfunctorily combined into a tentative framework, or "ego." The investigator, however, made the Id the center of his conceptual orient-

[1] From the Neuropsychiatric Service of Cushing Veterans Administration Hospital, Framingham, Mass., and Department of Psychology, Clark University, Worcester, Mass.

ation to which his abiding interest was devoted.

Under the impact of new observations this rather indifferent construct was developed at last into a system increasingly significant in the dynamic interplay of experience until the ego became the place upon which psychoanalytic observation concentrated (Freud, A. 1946). In this second phase of conceptual development the aims of observation and theory building went to the ego's defensive function. If the advances implied in the concepts of psychoanalytic ego-psychology are taken for granted here without being further discussed, their significance should not be overlooked[2]. In psychoanalysis, advances in therapeutic method have always interacted with advances in theory (Hartmann 1951). Ego Psychology substantiated a new approach to therapy. Tested in the therapeutic situation, ideas about the ego were bound to change radically as the new approach brought new observations.

Since the fundamental turn in the development of psychoanalysis toward a dynamic psychology of the ego, we are returning—as in any good mythology, after the descent into the under-world, to the Mothers—to the axiom that whatever we experience is modified by the functioning of the ego through which we experience it. The ego is unaware of a good deal that goes on in its systemic complexity, even when it reflects upon itself quite intentionally. Yet there is little in the forging-ahead and recoiling, in the scheming, grasping and yielding, in the perennial adaptive skirmishes of living, as well as in the planning, reasoning and day-dreaming accompanying it without let-up, that does not come to at least a fleeting awareness, disguised, scattered, unrelated, and hazy though it may be. The observation of Psychoanalysis that the Id continuously develops derivatives which become conscious, meets at this point with the contention of the epistemologist that in order to be given at all, an event has to be in some way the subject of some kind of experience (Reininger 1930). Only when we begin to inquire into aims and intentions shall we find that the ego is unaware of many of its goals and attitudes. We put it better if we say that many of its goals, though seemingly organized in configurations at a relatively late period of adjustment, secretly still belong to a much older orbit of experience, so that the two, conscious new and unconscious old, under certain conditions merge. If affect causes anxiety when, at least under normal adult conditions, there is no reason for it, we might assume that the objective situation is not well enough differentiated from the one subjectively implied. The present occasion has the same global (Werner 1948) meaning that a set of experiences had in the early development of the person who is now afraid. When it is apt to cause anxiety the present occasion, at least in some important respects, is no more differentiated than its diffuse original in childhood. For the passing scrutiny, the quick scanning that precedes, or goes along with acting, presence and personal past become indistinguishable. We fear and worry about problems that in some way we had reason to fear and worry about as children, although that same rea-

[2] For the most comprehensive statement of psychoanalytic Ego Psychology, see Hartmann (1950a). See also Hartmann (1939, 1950b, 1951), Hartmann and Kris (1945) and Hartmann, Kris and Loewenstein (1946).

son may now relate only remotely to our adult circumstances. One could also say, at least as far as this particular subject is concerned, that we have not only lost the ability to differentiate between the present and the past, but also between our phantasies and independent "objective" conditions (Freud, S. 1949). However, when we trace back the growth and linkage of such configurations through the development of the individual, it will become clear that the present ego knew nothing of this fusion. In fact, this ego will recognize it as part of its own past, continued into the living presence, only slowly and against a lot of resistance in the reconstruction of psychoanalytic therapy. The growth of the physiological organism into a complex functioning whole from earlier and later tissue and earlier and later modes of functioning provides a natural model for the schema through which we try to understand those aspects of the organism marked as "experience" or "behavior."

Having returned to the ego as the site of observation (Freud, A. 1946), we have to acknowledge that beside a schematic suggestion of the ways in which the ego copes with pressures, and beside a genetic classification of some of the ego's modes of response, we have not yet really extended the immensely fruitful dynamic models of psychoanalytic observation to the ego's functioning as a whole (Hartmann 1950a). In other words, we do not really know what adjustment is, how it comes about, and how it goes on. What is specific for the ego is not only to react to the pressures of needs and of various demands from outside but in so doing to follow certain fundamental patterns of pleasure-seeking, tension-reduction and self-protection. Nor is it enough to say that the ego can envision things by itself or have phantasies of great dynamic consequence. The most encompassing quality of the ego is the continuous effortful, goal directed, self-experienced activity—what we mean when we speak in common parlance of *"thinking."* We have to be more specific and hence will relate the functioning of the ego to the concept of *cognition*. Surely, the ego is concerned with manipulating its tensions and pressures. Without this fundamental assumption we would still be stuck with those over simplified mechanical models of behavior which do not even come near the variety of experience as it is actually lived. Needs and pressures, however, are manipulated in a continuous process of evaluating the modes of these experiences. Some are endogenous, some seem to come from outside. Yet that latter judgment, for instance, does not come to the ego all by itself (Loewald 1951). Discriminating what belongs to the self and its phantasies and what is independent of it, is not only the effect of a lengthy process of development but, in a way, is a continuous ever-renewed task. If the data of its perception should further its instinctual needs, the ego has to differentiate its own private world from the common, external and "objective" one unceasingly. In mediating between instinctual cravings and external demands, and conversely, between instinctual dangers and external benefits, the ego has to analyze, extract, compare, and put it all together in a new configuration. The ego reasons or "solves problems." In so doing the ego also brings together its discrete impressions and unifies them (Freud, S. 1947, Nunberg 1948, Waelder 1936). Perhaps in order to avoid too much tension

and to save expenditure of energy, the ego will organize whatever complexity of experience it finds reverberating in itself—need tensions, overlapping and opposing patterns of ideas and inclinations (the remnants of earlier experience), memories, fleeting bits of phantasy and acts of reasoning—into a more or less coherent new configuration. Thus, the quality fundamental to the ego is not only that it controls motility or that it sets up defenses against instincts (Freud, S. 1927), all these are but facets of the *cognitive function of the ego: differentiation and organization.* Whatever dynamic constellation is postulated to account for behavior (or for the stalling of it) is a function of the fact that the ego differentiates, that the ego reasons. How that present state of a given personality came about, and what it means, will be determined by the fact that it has been subject to a development from rudimentary and diffuse to highly differentiated and integrated systems, the course of which can be predicted in its major stations (Werner 1948). Whatever there is of the ego is to some extent cognitive.

In the first stage of psychoanalysis the dynamics were essentially oriented to the past and to the genesis of conflict. Dynamic psychology opened enormous perspectives of the "what" of experience. By its very preoccupation with content and origin, the "how" of experience beyond the basic patterns of conflict between instinct and internalized authority, had to remain uncertain. A peculiar shift of meaning may also have taken place in the mind of many observers who under the microscope of psychoanalysis for the first time saw dimensions of motivation which formerly had been passed by unawares. There was indeed enough material to marvel at the ego's weakness—under normal circumstances, let alone in pathology. Weakness, however, seems to have been confused with passivity. The ego was conceived as a mere site of conflict, a wincing and mincing compromiser between instinct and authority, the eternal dupe of obscure and overwhelming forces.[3] The ego's functional capacities prevailed, of course, but were relegated to a peculiarly secondary character. Witness the concept of reality-testing: combined in this generalized notion is the enormous complexity of the ego's cognitive functions which are infinitely and variously related to the dynamics of conflict: for personality functions and develops as *one* organismic system, rent and contradictory though it may be in some of its aspects. These conflict-free dimensions of the ego (in Hartmann's term) (1939) had been the subject of psychological investigation for a long time so that a considerable amount of information had accumulated and frameworks had been developed which only waited to be joined with the dynamics of conflict into a dynamic theory of personality. Frames of reference such as those of Field Theory or of Hierarchic Integration, data such as those pertaining to concept formation and configurational quality, or as in the recent trend of investigation, to the structure of perception, essentially all mean the same thing. They represent aspects, perhaps often abstracted and overdrawn, but integral aspects still of the *ego's cognitive functioning for the purpose of adjustment.* In all that adjustment personality will continuously have

[3] For one of the logical extremes of this position, see Groddeck (1928) and Grotjahn (1945). For its classical statement, see Freud, S. (1927).

to deal with the diffuse welter of primary experience. It will single out and define some of it as perceptions, store these data, corroborate them with others and apply them toward discharging needs which in the meantime have been recognized as subjective and internal. In order to do this, the ego will probably enter into action—motor behavior—but beforehand will envisage in thought to what it aspires, as well as various possibilities of accomplishing that goal. As long as it functions at all, the ego will have to differentiate, organize, and integrate. In so doing, it will maintain itself and if interfered with will struggle to preserve the integrity of its functioning. How well it functions will depend on the job at hand, on the endowment of the ego, and on its personal history. Trauma, dissociation, fixation, regression hence are events not only of consequence for cognition, but they *are* states and processes (or failures) of cognition. If we accept the axiom that the organism functions as one, we must assume that every experience has cognitive aspects. It will be as profitable then to abstract cognitive and structural aspects from its global totality as it has proven to be when the dynamic meaningfulness and instinctual aim of experience are concerned. The organism functions as a pluralistic one: there is a good deal of local autonomy, as it were, shifting from one focus of experience to the other, competition among several of them and hence conflict. The problem of organization (such as Werner's hierarchic integration) is a function of that pluralism. While the organism functions in such a way that its parts are interdependent, the psychological experience of that functioning is not necessarily a unitary one at all times. In fact it is less so the less advanced the organism is in its development.

Neurosis is not only a complex interplay of repetition compulsion and of the environment's unconscious connivance (Wyatt 1950a, 1950b), which in turn facilitates the repetition of the original trauma. When a child goes through oedipal anxieties, in spite of the sorrowful concern of his latter-day parents to help him avoid the inevitable, he derives anxiety *not* from facts such as the witnessing of parental intercourse *but* from the elaboration of scattered bits of observation in his phantasy. *There* obscure noises jell into an elaborate act of violence while the ego cannot yet differentiate itself from the diffuse welter of primary experience, or distinguish phantasy from heterogeneous fact. A patterning of this particular pseudo-perception will probably follow, commensurate with the lack of differentiation and complicated by the ego's inclination to repress a painful content. If we want to account for the effect of this experience later on, in view of the presence of anxiety or its compulsive avoidance or in connection with specific character traits and attitudes, the cognitive functioning of the ego and its development will be of primary significance.

We might in this way envisage a general psychopathology rewritten in terms of the cognitive events of the ego. Our ideas of the dynamics of motivation would not change fundamentally. They would be significantly modified and enlarged by filling in the empty spaces between instinctual needs, environmental and cultural pressures, and the defensive reactions of the ego in our understanding of man's day-by-day psychological functioning. The specificity of individual devel-

opment might become clearer, as might in reverse the personal nature of cognitive functions and their developmental hierarchy. We might come nearer thus to the central goal of all psychological research: a unified theory of personality. Convergent upon it, we might be able to investigate man's experience and behavior more systematically than we have been able so far.[4]

What is the place of the following papers in this prospect? These studies have used the Rorschach experiment as a means of isolating a dimension through which genetic development and its reversal in psychopathology could be demonstrated. The dimension is that of differentiation and organization in the perception of blot-areas in the Rorschach Test. The theoretical premises are those of Psychoanalytic Ego Psychology and of the organismic Psychology of Development as formulated by Heinz Werner.

What are the aspirations of these studies? (1) Beginning with the specific and technical, the authors hoped to contribute to the diagnostic acuity of the test by defining more sharply the age levels of normal development in the differentiation and organization of areas together with the relationship of certain broad diagnostic categories to these levels. (2) These studies appeared to be capable of substantiating one aspect of the theory of development in the field of perception. Their results show a regular progression over ascending age levels and offer suggestions as to psychological meaning of this progression. (3) If a definition of the theoretical place of these studies were demanded, it would be in line with my remarks submitted before: the overall aim of these studies is to offer an experimental demonstration of the cognitive functioning of the ego as determined by development, or by its undoing in the incident of psychopathology which appears yet to be consistent with the principles of unfolding cognitive development.

In the genesis of this research project the first paper to be presented here was the first one to be projected. Friedman was originally interested in investigating regression and in devising techniques for this end. Dworetzki had pursued a similar idea in her studies on the evolutionary aspects of perception. Her study was deficient, however, not only because of insufficiently defined samples and of an inadequate methodology, but even more so because of the absence of a systematic theoretical framework. Psychoanalysis and Werner's Genetic Psychology seemed to provide such a frame of reference. The contribution of the author was to design a methodology capable of analyzing the cognitive functions under scrutiny and of measuring them with an accuracy transcending that of customary scoring procedures.

When this approach proved fruitful, it was extended to other clinical problems. For one, it seemed necessary to provide a reliable scale of genetic ascendence and to check upon the assumptions made in this respect by Friedman. This was undertaken by Larry Hemmendinger, and it may well be said here that it has been tested again since by Irving Frank in a control sample and found entirely accurate. In the clinical studies of Siegel and Pena the notions of the first study were re-examined. Most

[4] I was pleased to find similar trends of argument throughout Blake and Ramsey, Perception, an Approach to Personality, especially in Bronfenbrenner's (1951) and Frankel-Brunswick's (1951) articles.

of its assumptions were confirmed, some discarded. In order to grasp the peculiarities of their subject, Siegel and Pena extended and adapted Friedman's methodology by designing new categories of observation. Friedman had demonstrated what deserved to be called Regression; Siegel showed that impairment in different types of disorders could be brought into a meaningful parallel with developmental progression. Pena extended this schema to the heterogeneous field of brain damage.

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Genetic Parallels of Perceptual Structuralization in Paranoid Schizophrenia: An Analysis By Means of the Rorschach Technique [1]

EDWARD L. SIEGEL, PH.D.[2]

INTRODUCTION AND STATEMENT OF THE PROBLEM

The relation of the paranoid psychotic disturbances to other psychotic disorders has long been a source of controversy. Generally, however, it has been agreed that paranoid patients in contrast to other psychotic groups, particularly the hebephrenic and catatonic schizophrenics, maintain a relatively greater degree of personality intactness. Paranoid psychotic patients rarely demonstrate the pervasive disorganization of formal thought processes, the tangential flights of ideas, the neologisms and gross disorientation found in the hebephrenic and catatonic psychoses (Bellak, 1948; Bleuler, 1950; Fenichel, 1945; Sullivan, 1947).

The purpose of the present study was to investigate this theoretical and clinical conception of a relatively greater intactness in paranoid psychotic patients. In its essence, such an investigation called for a comparative examination of levels of impairment in psychotic functioning. Previous findings in the literature, notably those of Dworetzki (1939) and Friedman (1953), pointed to the existence of striking parallels in the formal aspects of perceptual functioning between psychotic adults and normal children. In short, it seemed likely that the perceptual phenomena typical of differing levels of impairment in pathology would be found to correspond with different perceptual levels on a genetic scale.

The methodology utilized by Dworetzki (1939) and adapted by Friedman (1953), in which the Rorschach inkblot test was used as an experimental genetic instrument, readily lent itself to application in this study. In addition, the theoretical formulations of Werner (1948) in genetic psychology helped to provide specific hypotheses. Werner viewed the psychopathological modifications of behavior in terms of a decrease in differentiation and hierarchic integration. Pathological perceptual functioning was described as a combination of genetically early and genetically late features with the genetically mature aspects being less dominant.

Patients diagnosed as paranoid schizophrenic were selected for study because they compose the bulk of the current paranoid psychotic population.

The hypothesis advanced was: that the structural aspects of the perceptual functioning of the paranoid schizophrenic consist of a

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[1] From the Neuropsychiatric Service of the Cushing Veterans Administration Hospital, Framingham, Mass. This article is an abbreviation of a dissertation submitted to the department of Psychology, Clark Univ., in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

[2] Clinical Psychologist.
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combination of genetically early and genetically late characteristics. However, in comparison to the perception of the hebephrenic and catatonic schizophrenic, paranoid schizophrenic perception has a higher proportion of genetically mature features. In this way, the perceptual activity of the paranoid schizophrenic corresponds to a level higher on the genetic scale than does that of the hebephrenic and catatonic schizophrenic, although it still remains below that of the normal adult.

Procedure

Experimental Groups

The data were derived from the individually - administered Rorschach records of 227 white, American-born males including 30 paranoid schizophrenics, 30 hebephrenic and catatonic schizophrenics and 30 normal adults, all between the ages of twenty and forty. Included also were the records of 30 children between three and five years of age, 22 children at six, 21 at seven, 22 at eight, 22 at nine and 20 at ten years.

All the subjects had IQ's of between 85 and 120 as measured by standard tests of intelligence.[3] Analysis of variance revealed no significant differences among the adult groups in age or intelligence. In years of education, chi-square tests showed significant (.01), though small (two years), differences between both the paranoid schizophrenics and the normal adults as compared to the hebephrenic and catatonic schizophrenics.

Among the groups of children, while there were no significant differences in the age distributions at each chronological level, analysis of variance and t-tests indicated that the eight-year-old children were significantly higher (.01) in IQ than both the nine and ten year old group. Although statistically significant, these differences were assumed not to be psychologically meaningful, since, in both cases, they amounted to less than nine IQ points, a difference well within the standard deviation of the intelligence measures used.

The method for gathering the protocols and the composition of the normal adult group and the group of hebephrenic and catatonic patients has already been described by Dr. Friedman. The mode of Rorschach administration and the nature of the six groups of children utilized in this study has been delineated by Dr. Hemmendinger.

Table I—Range, Means and Medians for each Group in Years of Age, Intelligence Quotients and Years of Education

	No. of cases	Age Range	Age Mdn	Age Mn	IQ Range	IQ Mdn	IQ Mn	Yrs. of Ed. Range	Yrs. of Ed. Mdn
Normal Adults	30	22-40	29	29.4	88-120	106	104.9	10-16	12
Paranoids	30	21-36	26	27.7	87-120	105	104	6-16	12
Heb. and Cat	30	20-39	26	27.4	85-118	101	99.9	7-16	10
3-to-5	30	3:0- 5:3	4:2	4:2	87-120	108	107.3		
6	22	6:0- 6:11	6:6	6:6	96-120	110	109		
7	21	7:3- 7:11	7:7	7:7	97-120	105	107		
8	22	8:0- 8:11	8:4½	8:5	96-120	113.5	112.1		
9	22	9:0- 9:11	9:4½	9:5	85-120	101.5	103.6		
10	20	10:0-10:9	10:5	10:5	91-116	104	103.8		

[3] See Table I.

The records of the paranoid schizophrenic subjects were collected at two different hospitals. The diagnosis of each patient was clearly established by staff conference procedures. The records of patients whose diagnoses were in any way qualified so as to indicate the possible presence of other factors were excluded. Further, a search of each patient's case history revealed that, at the time of testing and diagnosis, no other medical or neuropsychiatric conditions were present.

Method of Analysis

In this analysis of the Rorschach records, scores were used which aimed at isolating as much as possible the purely structural aspects of the perceptual functioning represented in the responses to the inkblots. The main scoring symbols were modifications of the location scores originally proposed by Rorschach (1942)—the gross Whole (W), Usual Detail (D) and Rare Detail (Dd) categories. The purpose of their modification was to "get at" something considerably more refined than just a summary of "where" in the blot the subject had located his responses. They were devised in order to provide the Rorschach analyst with a succinct and quantifiably-useful method of revealing the nature and quality of the individual's integrative effort at various genetic levels, i.e., for expressing how well he "broke down" the whole blot or some perceptually-available part of it and then "put it together" in a logical or even an absurd combination; with what degree of specificity, he utilized part or all of the blot's outline features or if he made use of them at all.

In the main, these scores were derived from the work of Beck (1949), Dworetzki (1939) and Rapaport (1946), who, among others, recognized the wide range of perceptual qualities subsumed within the individual gross location scores. For the most part, they were expressed in their present form by Dr. Friedman and the definitions he has already presented were substantially the same as those applied in this research. The definitions of the Rare Detail categories and the Adx-Hdx responses, already delineated by Dr. Hemmendinger, were devised by this author and to a certain extent also, owe their origins to Dworetzki and Beck. However, they have been subjected to considerable revision in order to achieve greater clarity and precision in their application.

The scores included the breakdown of the W and D responses into Amorphous, Minus, Confabulatory, Vague, Mediocre, + and ++ categories. These Whole and Usual Detail scores were divided into two groups: those assumed to involve genetically early qualities of perceptual functioning (the Vague, Minus, Amorphous and Confabulatory) and those involving genetically late (the Mediocre, + and ++) qualities. This division was essentially an operational one based upon the findings in the literature and upon the degree of differentiation and integration seemingly necessary for their production.

Lacking objective delimitations of area and standards for form-level evaluation, the Dd responses could not be analyzed within this framework. However, three types of Rare Detail responses, in addition to the common, typical Dd responses were defined. These were the "Parenthetical Dd" or (Dd), the "Descriptive Dd" ($_{d}$Dd) and the "Physiognomic Dd" ($_{p}$Dd) scores. Other scores used were as follows: Fabulized Combinations,

Contaminations, Adx-Hdx, Perseveration Score, Number of Things Perseverated and a Content Score.

The reliability of the definitions for all the scoring categories was checked by having each record, information as to diagnosis and age being concealed, scored independently by two other judges. The mean percentage of agreement among the three judges was 93.9%. It seemed reasonable to conclude that these scorings were not only accurate for the records analyzed here, but that the definitions could be readily applied by other Rorschach examiners.

Results

In analyzing the data, several types of comparisons were made: (a) each of the pathological groups was compared to the normal adult group and to each other in order to unfold their relative interrelationships; (b) the paranoid group was compared to each of the groups of children in order to find its level along the genetic scale.

The statistical techniques utilized in these comparisons closely followed the recommendations of current papers on statistical methods in clinical research. The application of the chi-square method has already been described by Dr. Friedman. P values of .02 or less were considered as indicating a significant difference, i.e., as providing a basis for discarding the null hypothesis. P values between .10 and .02 were considered as pointing out only a tendency to differ on the part of the compared groups.

The results of this analysis of the formal aspects of perceptual

Table II*—Significance of Differences Between Groups in Per Cent of Whole (W) Responses, Usual Detail (D) Responses, Rare Detail (Dd) Responses and in Total Number of Responses (R)

		MEDIANS		
GROUPS	W/R%	D/R%	Dd/R%	R
3 to 5 yrs.	53.5	41.5	0	15.
6 yrs.	30.	54.5	12.5	17.5
7 yrs.	9.	61.	19.	35.
8 yrs.	6.5	67.	14.5	33.
9 yrs.	10.5	71.	10.	25.5
10 yrs.	11.5	76.	11.	27.5
N	25.5	67.	4.	19.
Pa	16.	57.	15.	26.5
HC	45.5	45.	3.	20.
COMPARISONS		P VALUES		
Pa-3 to 5	<.001	<.001	<.001	<.001
Pa-6	.05-.02	>.10	>.10	>.10
Pa-7	>.10	>.10	>.10	>.10
Pa-8	>.10	.10-.05	>.10	.10-.05
Pa-9	>.10	.05-.02	>.10	>.10
Pa-10	>.10	.01-.001	>.10	>.10
Pa-N	.10-.05	.10-.05	<.001	.05-.02
HC-3 to 5	>.10	>.10	>.10	>.10
HC-N	<.001	<.001	>.10	>.10
Pa-HC	<.001	.01-.001	<.001	>.10

* The groups are designated as follows on all tables: N for normal adults; Pa for paranoid schizophrenics; HC for hebephrenic and catatonic schizophrenics. Each group of children is designated by its chronological age. Comparisons between groups are shown by hyphenations; thus, Pa-6 signifies a comparison between paranoid schizophrenics and six year old children.

functioning may be summarized as follows:

1. With regard to *location-choice* i.e., the use of the Whole, Usual Detail and Rare Detail areas (cf: Table II), the paranoid schizophrenics were closer to the normal adults than were the hebephrenic and catatonic schizophrenics. The hebephrenics and catatonics resembled the children between three and five years of age in that their responses were almost equally divided between the perception of parts and wholes. The paranoid schizophrenics, however, most closely resembled the performance of the groups of children between six and ten years—that is, they perceived a greater proportion of parts than wholes. Moreover, the parts perceived by the paranoid schizophrenics were comprised of both Usual Detail and Rare Detail areas. This use of the Rare Detail areas established the close relationship between the perception of the paranoid group and that of the children between six and ten years and served to distinguish them from the normal adults.

2. Analysis of the *quality of the responses* (cf: Tables III, IV, V, VI) i.e., the use of genetically early (Amorphous, Minus and Confabulatory) responses and genetically late (++, + and Mediocre) responses and the prevalence of certain types of Rare Detail ($_{d}$Dd, Dd, $_{p}$Dd) answers, indicated that the perception of the paranoid schizophrenics resembled that of children between six and ten years of age. The quality of the hebephrenic and catatonic perception resembled that of children between three and five years of age. In this way the paranoid schizophrenic group performed closer to the normal adult group than the hebephrenics and catatonics. Where the paranoid schizophrenics showed

TABLE III—Significance of Differences Between Groups in Per Cent of Genetically High Whole Responses, Genetically Low Whole Responses, Genetically High Usual Detail and Genetically Low Usual Detail Responses

GROUPS	MEDIANS			
	HIGH W % W	LOW W % W	HIGH D % D	LOW D % D
3 to 5 yrs.	15.5	84.5	31.	69.
6 yrs.	29.	61.5	50.	50.
7 yrs.	50.	50.	60.	40.
8 yrs.	62.	33.	58.	42.
9 yrs.	56.5	38.	63.	37.
10 yrs.	63.5	22.5	62.5	37.5
N	83.	12.	76.	24.
Pa	60.	40.	67.	33.
HC	38.	62.	57.5	41.
COMPARISONS	**P VALUES**			
Pa-3 to 5	<.001	<.001	<.001	<.001
Pa-6	>.10	.02-.01	.01-.001	.05-.02
Pa-7	>.10	>.10	.02-.01	.05-.02
Pa-8	>.10	>.10	.10-.05	.10-.05
Pa-9	>.10	>.10	>.10	>.10
Pa-10	>.10	>.10	.10-.05	.10-.05
Pa-N	.01-.001	<.001	>.10	>.10
HC-3 to 5	<.001	<.001	<.001	<.001
HC-N	<.001	<.001	<.001	<.001
Pa-HC	.05-.02	.01-.001	.05-.02	.10-.05

TABLE IV—Significance of Differences Between Groups in Per Cent of Amorphous, Minus and Confabulatory Whole (W) and Usual Detail (D) Responses

GROUPS	Wa/W%	Da/D%	W−/W%	D−/D%	DW/W%	DdD/D%
			MEDIANS			
3 to 5 yrs.	0 (33.)*	0 (30.)	38.5	50.	11. (67.)	0 (17.)
6 yrs.	0 (41.)	0 (36.)	19.	31.	0 (9.)	0 (32.)
7 yrs.	0 (10.)	3. (62.)	17.	22.	0 (5.)	0 (29.)
8 yrs.	0 (9.)	0 (18.)	15.5	25.	0 (9.)	0 (23.)
9 yrs.	0 (5.)	0 (14.)	6.5	22.5	0 (5.)	0 (23.)
10 yrs.	0 (5.)	0 (40.)	20.	25.5	0 (0)	0 (10.)
N	0 (0)	0 (7.)	0	16.	0 (0)	0 (7.)
Pa	0 (17.)	0 (37.)	0	19.	0 (0)	0 (3.)
HC	0 (37.)	0 (17.)	22.	20.	4. (50.)	0 (13.)
COMPARISONS			P VALUES			
Pa-3 to 5	>.10	>.10	<.001	<.001	<.001	>.10**
Pa-6	>.10	>.10	>.10	.10-.05	>.10**	.02-.01**
Pa-7	>.10**	>.10	>.10	>.10	>.10**	.05-.02**
Pa-8	>.10**	>.10	>.10	.10-.05	>.10**	.10-.05**
Pa-9	>.10**	>.10-.05	>.10	>.10	>.10**	.10-.05**
Pa-10	>.10**	>.10	>.10	.05-.02	>.10**	>.10**
Pa-N	.10-.05**	.02-.01	>.10	>.10	>.10**	>.10**
HC-3 to 5	>.10	>.10	>.10	<.001	.10-.05	>.10**
HC-N	<.001	>.10**	<.001	.10-05	<.001	>.10**
Pa-HC	>.10	>.10	.01-.001	>.10	<.001	>.10**

* Median values of zero indicate that fewer than fifty per cent of the subjects in a group have used the score. In such cases, the chi-square test becomes a test of presence or absence. To make the resulting comparisons meaningful, the parenthetical figures report the per cent of cases in each group that do give the response.

** The double asterisk indicates that the P value is based on chi-square tests with two or more expected frequencies of less than five.

TABLE V—Significance of Differences Between Groups in Per Cent of Well-Integrated Genetically High Whole (W) and Usual Detail (D) Responses

GROUPS	$\frac{W++}{W}$%	$\frac{D++}{D}$%	$\frac{W+}{W}$%	$\frac{D}{D+}$%	$\frac{W++ + W+}{W}$%	$\frac{D++ + D+}{D}$%
3 to 5 yrs.	0 (0)	0 (0)	0	0	0	0
6 yrs.	0 (5.)	0 (5.)	0	1.5	0	1.5
7 yrs.	0 (10.)	0 (5.)	0	4.	0	4.
8 yrs.	0 (9.)	0 (14.)	0	7.	0	7.
9 yrs.	0 (32.)	0 (32.)	0	7.	0	9.5
10 yrs.	0 (25.)	0 (25.)	4.	11.5	16.5	12.5
N	0 (27.)	0 (13.)	13.	18.	22.5	18.
Pa	0 (17.)	0 (10.)	0	13.	0	13.
HC	0 (10.)	0 (0)	0	10.5	0	10.5
COMPARISONS				P VALUES		
Pa-3 to 5	.10-.05**	>.10**	>.10	<.001	>.10	<.001
Pa-6	.10-.05**	>.10**	>.10	.05-.02	>.10	.05-.02
Pa-7	>.10**	>.10**	>.10	.02-.01	>.10	.02-.01
Pa-8	>.10**	>.10**	>.10	.10-.05	>.10	>.10
Pa-9	>.10	>.10	>.10	.10-.05	>.10	>.10
Pa-10	>.10	>.10**	>.10	>.10	>.10	>.10
Pa-N	>.10	>.10**	.10-.05	>.10	.05-.02	>.10
HC-3 to 5	>.10**	>.10**	>.10	<.001	>.10	<.001
HC-N	.10-.05	>.10**	>.10	>.10	<.001	>.10
Pa-HC	>.10**	>.10**	>.10	>.10	>.10	>.10

TABLE VI—Significance of Differences Between Groups in Per Cent of Vague Whole and Usual Detail Responses, and Mediocre Whole and Usual Detail Responses

GROUPS	Wv/W%	Dv/D%	Wm/W%	Dm/D%
	MEDIANS			
3 to 5 yrs.	0	0	14.	25.
6 yrs.	8.5	7.	26.	46.5
7 yrs.	9.	11.	33.	52.
8 yrs.	0	10.5	38.	50.5
9 yrs.	0	8.	40.	51.5
10 yrs.	0	8.	33.	51.
N.	0	5.	50.	60.
Pa.	26.5	5.5	41.5	50.
HC.	17.	11.5	31.5	45.
COMPARISONS		P VALUES		
Pa-3 to 5	.01-.001	>.10	.01-.001	<.001
Pa-6	.10-.05	>.10	>.10	.10-.05
Pa-7	>.10	.05-.02	>.10	>.10
Pa-8	<.001	.10-.05	>.10	>.10
Pa-9	.02-.01	>.10	>.10	>.10
Pa-10	.01-.001	>.10	>.10	>.10
Pa-N	.05-.02	>.10	>.10	>.10
HC-3 to 5	.05-.02	>.10	<.001	<.001
HC-N	.10-.05	.10-.05	<.001	>.10
Pa-HC	>.10	>.10	>.10	>.10

TABLE VII—Significance of Differences Between Groups in Combined Rare Detail Scores ($_{a}$Dd+) (Dd+$_{p}$Dd), ADX+HDX, and Combined FAB C and Contamination Responses

GROUPS	$_{a}$Dd+ (Dd)+$_{p}$Dd	Adx+Hdx	FabC+Contam
	PER CENT OF CASES *		
3 to 5 yrs.	10.	3.	37.
6 yrs.	50.	27.	18.
7 yrs.	71.	43.	33.
8 yrs.	41.	45.	27.
9 yrs.	41.	45.	18.
10 yrs.	25.	35.	10.
N	3.	7.	3.
Pa	40.	20.	23.
HC	13.	10.	30.
COMPARISONS	P VALUES		
Pa 3 to 5	.02-.01	>.10**	>.10
Pa-6	>.10	>.10	>.10
Pa-7	.10-.05	>.10	>.10
Pa-8	>.10	.10-.05	>.10
Pa-9	>.10	.10-.05	>.10
Pa-10	>.10	>.10	>.10
Pa-N	.01-.001	>.10**	.10-.05
HC-3 to 5	>.10**	>.10**	>.10
HC-N	>.10**	>.10**	.02-.01
Pa-HC	.05-.02	>.10**	>.10

* Medians are not presented for these categories, since, for the most part, less than fifty per cent of each group gives these responses. As a result, all the medians with two minor exceptions are zero. Thus, the chi-square tests here are of presence and absence and the per cent of cases in each group that gives the response is a more meaningful statistic.

an emphasis on certain immature features (e.g., Da (Table IV), the early types of Dd responses (Table VII)) in their perception, these qualities were similarly emphasized in the records of the groups of children between six and ten years of age.

3. Vague Whole responses appeared primarily in the records of the pathological groups (cf: Table VI).

4. While the patterns of intergroup relationships established in the Whole responses were approximately preserved in the D responses (Tables II, III, IV, V, VI), it was frequently noted that both pathological groups tended to perform closer to the normal adult standard in D than they did in their use of W. The clear differences that distinguished the pathological groups from the normal adults in the W responses were smaller and less clearly differentiating in the D responses.

5. When the records were analyzed for the presence of certain *fragmented responses,* i.e., the Adx-Hdx scores (Table VII), it was found that the paranoids tended to produce more such answers than the hebephrenic and catatonic group and the normal adults. This reflected a similar emphasis in the records of the six to ten year old children.

6. In responses that involved the *fusion of blot areas,* or of several contents given to the same blot area, i.e., the Fabulized Combinations and Contaminations, (Table VII), the paranoid schizophrenics took an intermediate position so that they could not be statistically distinguished from any of the groups of children. Nevertheless, they performed closer to the normal adult standard than did the hebephrenic and catatonic schizophrenics.

7. When the responses were analyzed for *diversity of content,* i.e., with respect to the Perseveration Score, the Number of Things Perseverated and the Content Score (Table VIII), the perception of the paranoid schizophrenic resembled that of the children between six and ten years. The paranoid group perseverated less in their responses than the hebephrenics and catatonics who resembled children between three and five years of age in this respect as well. Thus, the paranoids were closer to the normal adults. However, they tended to perseverate on more things and to use a greater number of content categories than either the hebephrenics and catatonics or the normal adults.

In short, with regard to the formal aspects of their perception, the paranoid schizophrenics resembled children between six and ten years of age, whereas the hebephrenic and catatonic schizophrenics resembled children between three and five years of age. Thus, the paranoid group came closer to the standards of normal adult performance than did the hebephrenics and catatonics. Furthermore, it was noted that the resemblance between the pathological groups and the children was not a total one, that the perception of the pathological groups was composed of a combination of both genetically early and genetically late scores.

Discussion

In many ways, these findings coincide with several existing theoretical formulations regarding the nature of events in the developmental and psychopathological processes. For example, much of these data might have been comprehended, if the concepts had been more specifically stated, within the developmental phases proposed by Sulli-

TABLE VIII—Significance of Differences Between Groups in Perseveration Score, the Number of Things Perseverated and the Content Score

GROUPS	Persev. Score	# Things Persev.	Content Score
3 to 5 yrs.	24.40	3.	5.75
6 yrs.	21.25	4.	8.75
7 yrs.	18.85	7.	14.
8 yrs.	22.05	5.5	11.
9 yrs.	17.	4.	10.75
10 yrs.	13.80	4.5	11.50
N	14.90	3.	8.25
Pa	18.	5.	11.
HC	20.65	4.	9.
COMPARISONS		**P VALUES**	
Pa-3 to 5	.05-.02	<.001	<.001
Pa-6	>.10	>.10	.10.05–
Pa-7	>.10	>.10	>.10
Pa-8	>.10	>.10	>.10
Pa-9	>.10	>.10	>.10
Pa-10	>.10	>.10	>.10
Pa-N	.05-.02	.02-.01	>.10
HC- 3 to 5	>.10	.01-.001	.01-.001
HC-N	.01-.001	.10-.05	>.10
Pa-HC	.10-.05	>.10	>.10

van (1947). However, the theoretical framework advanced by Werner (1948), by virtue of its more specific delineation of the formal qualities characteristic of the stages of perceptual development, lends itself more readily to an ordering of the empirical results gathered in this study.

Friedman and Hemmendinger have already given a detailed picture of the linkages between the scores used in these studies and the qualities attributed by Werner (1948) to the various levels of development in the structure of perception. The genetically-early scoring categories, Amorphous, Minus and Confabulatory, have been described as epitomizing the "syncretic," "diffuse," "global," and "labile" characteristics of primitive perception; the ++ and + scores have been seen as representations of considerable differentiation and integrative activity, of a "discrete," "articulated," goal-directed perception.

In addition, Friedman, on the basis of his own results, has suggested that the Vague and Mediocre responses may be thought of as transitional categories between the extreme types of genetically early and genetically late reactions. The findings upon which he based his conclusions are strikingly reproduced in this study. Psychopathology seems to lead to a sharp increase in the number of Vague percepts—a perceptual characteristic for which there is no genetic parallel and which seems to represent primarily a breakdown in the quality of the adult's once-achieved, genetically mature Mediocre responses.

As Dr. Hemmendinger has already stated, the "descriptive" and "physiognomic" Rare Detail categories may be regarded as denoting the merger of sensory-kinaesthetic and emotional qualities in perception. Such attributes mark the early stages of the discrete perceptual activity of children between

six and ten years of age and are also found prominently in the records of the paranoid schizophrenics.

The Adx-Hdx responses were taken to be indicators of the ability to perceive parts without the capacity yet acquired (or perhaps already lost) to integrate them. Such scores were common to both the paranoid protocols and those of the children between six and ten years of age.

The Fabulized Combinations and Contaminations were viewed as representative of the labile and syncretic qualities of genetically early perception since they involved the fusion of percepts either because of spatial contiguity or spatial identity.

The diversity of content was analyzed through a Perseveration Score, the Number of Things Perseverated and a Content Score. Friedman in his initial interpretation of these scores on the basis of his own findings, viewed the Perseveration Score as an index of perceptual rigidity. On the other hand the Number of Things Perseverated was seen as scores which indicated a certain awareness on the part of the subject of changes in the configuration of the stimulus and a capacity for varying behavior with these changes—even though responses, already given, were being repeated. In a sense then, the Number of Things Perseverated seemed to show some degree of flexibility. The results here seem to call for a modification of Friedman's views for they may indicate the influence of still another perceptual quality. While perseveration reaches its peak among the three to five year old children—a peak reflected in the performance of the hebephrenic and catatonic patients—the Number of Things Perseverated is greatest among the children at seven and eight. This relationship is reflected in the perception of the paranoid schizophrenics as well.

From the entire range of data, it seems likely that the perception of the paranoid group, like that of the groups of children between six and ten, may be characterized by a fractionated or fragmented quality. The individual at these levels perceives the inkblot as a multitude of small and large parts and applies percepts to these parts in a sort of a helter-skelter fashion, relatively lacking in unification and integration, as contrasted to the perceptual activity of the normal adult. Thus, the fact that paranoid patients and six to ten year old children exceed the normal adults in the Number of Things Perseverated may be taken as evidence not only for a greater flexibility than that characteristic of such more primitive groups as the very young children and the hebephrenics and catatonics, as pointed out by Friedman, but also as an expression of the influences of a fragmented type of perceptual functioning.

A similar modification is suggested in the rationale proposed by Friedman for the Content Score. He considered that category as an indicator of "breadth of interest," of the extent of acquaintance with environmental objects. Again, the results in this study seem to betray, in the performance of both the paranoids and the six to ten year olds, the influences of a fragmented type of perceptual functioning, of a level characterized by differentiation, but only the beginnings of a capacity for integration.

Conclusions

Comprehended within this framework of genetic theory, the data gathered in this study seem to war-

rant the following conclusions:

1. The formal aspects of perception are used here to indicate the degree of impairment in schizophrenic functioning. The differences between the performance of the paranoid schizophrenics in comparison to hebephrenic and catatonic schizophrenics have been shown to parallel differences in performance along a scale of perceptual development. On such a genetic scale, the perception of the paranoid schizophrenic corresponds to the more differentiated but little integrated perception of children between six and ten years of age, whereas hebephrenic and catatonic perception resembles the global, amorphous, perceptual activity of three to five year old children.

2. The perception of the paranoid schizophrenic is more intact and closer to that of the normal adult than is the amorphous, diffuse, rigid and labile perception of the hebephrenic and catatonic patient.

3. Although there are striking similarities between the formal perception of paranoid schizophrenics and six to ten year old children, these similarities should not be construed as indicating an identity of perceptual operation in the two groups; actually paranoid perception is a combination of both genetically early and genetically late characteristics.

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Perceptual Organization and Development as Reflected in the Structure of Rorschach Test Responses [1]

LARRY HEMMENDINGER, PH.D.[2]

Dr. Friedman has just described for you a research project in which the hypothesis of regression, a concept from psychopathology, was attacked experimentally by applying to a perceptual test some concepts from genetic psychology (Friedman 1953). He has demonstrated some striking similarities in perceptual behavior between young children and a group of schizophrenic patients and has highlighted the differences between these two groups on the one hand and a group of normal adults on the other.

Those of us who were with Dr. Friedman during the time he worked out the major problem in defining the scores and in establishing their theoretical rationale were aware that the difference between "mature" and "immature" Rorschach scores highlighted two different kinds of psychological functioning and that a sequential study of children's Rorschachs would aid us in describing and understanding some phases of the changes with age in the structure of children's perception. Specifically, it was proposed that these Rorschach scores, plus a few new ones, would help in elucidating certain aspects of Werner's genetic theory (Werner 1948).

This genetic theory proposes that immature and mature levels of psychological development can be described respectively as relatively "undifferentiated" or as "differentiated and hierarchically integrated."

Thus immature perception is said to be syncretic, diffuse, indefinite, rigid, and labile. The young child's perceptual reactions are seen as a blend of motor-imaginal-emotional-visual processes, a diffuse reaction to the global aspects of the situation-as-a-whole, which should be reflected in certain ways in the structure of Rorschach responses. From this kind of perception development is thought to proceed through a process of differentiation and integration, a separation of discrete functions and psychological processes, and their out-growth into an integrated pattern of distinct visual processes, characterized as discrete, articulated, definite, flexible, and stable. Such development proceeds through the two paths of maturation and learning and is never complete; the adult's behavior retains some of the fused-function, global properties that are especially characteristic of young children. It has been proposed that this "adult" kind of perception, as seen in Rorschach responses, should be different in particular ways from that of children. There are very few direct experimental studies of these developmental principles in the area of perception, although

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[1] From the Department of Clinical Psychology of the Neuropsychiatric Service of the Cushing Veterans Administration Hospital, Framingham, Mass.

[2] Formerly Clinical Psychology Trainee at Cushing VA Hospital, now Clinical Psychologist, Veterans Administration Mental Hygiene Clinic, Bridgeport, Conn. Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

they have been noticed, for example, in children's drawings (Bell n.d.).

The children used in this study are nursery- and grammar-school boys of average intelligence and of average socio - economic background, none of whom showed evidence of emotional abnormality. They are divided into 8 groups, one year each, from 3 years to 10 years, 11 months. The adult group of 30 normal males is the same group used by Dr. Friedman. Table I shows the age and IQ data for the 190 subjects.

Dr. Friedman has described in his paper some of the major Rorschach scores used in this study, the Whole and Usual Detail scores, Fabulized Combinations and Contaminations, and Content Score. In this study a number of other Rorschach scores have been added, namely Beck's "Hdx" and "Adx" scores (Beck 1949), and a breakdown of the Rare Detail location scores into 4 groups:

(Dd): these are non-scorable rare details, heretofore considered only as card description. Tiny projections, points, small shaded areas, little white or colored spots, or lines in the middle of the card are noticed and commented upon in a descriptive rather than an interpretive fashion. "Little black dots," "a line there," "dark places," are examples of this category. These scores are not included in the Dd%.

dDd: descriptive Rare Details, are scorable. In this case the subject has commented on these rarely-noticed portions of the blot and has given a realistically descriptive but minimally interpretive response based for the most part on the schematic form quality of shape alone. "A straight line that a ruler makes," "4 squares," "a wheel, cause it's shaped, like round," are examples of these scorable Dd responses.

pDd: physiognomic Rare Details, are also scorable. Here the small, rarely-noticed portions of the blot lead the subject to try to convey in an extra-interpretive fashion, his syncretic mode of perceiving them, a kind of perception sometimes based upon the motor-affective qualities of things, their capacity to serve as "things-of-action," or upon their tactual and kinaesthetic qualities, their physiognomically sensuous qualities. "Pinchy things on trees," "a brook you'd jump over," "looks like a cliff; you know, falling off – you'd fall down the end," are responses scored pDd.

Dd: The ordinary Rare Detail response, in which there appears to be nothing striking in terms of the syncretic, primitive perception in which we are interested. The three new scores here

TABLE I—Age and IQ Data for the Subjects Used in This Study

Age	N	Mean IQ	Range	Mean Age
3:0-3:11	20	107.50	93-120	3:5.90
4:0-4:11	20	112.25	87-120	4:5.90
5:0-5:11	20	102.95	89-120	5:5.45
6:0-6:11	20	109.90	88-120	6:5.60
7:0-7:11	20	106.10	92-120	7:6.80
8:0-8:11	20	108.75	96-120	8:5.05
9:0-9:11	20	103.10	85-120	9:4.10
10:0-10:11	20	103.80	91-116	10:4.30
20-40 years	30	104.90	88-120	29 yrs.

were worked out with Dr. Edward Siegel.

All these Rorschach scores may be considered as reflecting levels of operation by the subject, since they are defined in terms of a genetic theory conceptualizing a change from a state of relative undifferentiatedness to a state of differentiation and hierarchic integration.

In this study the main criteria for assessing developmental changes are as follows: W%, D%, Dd%, and the proportion of genetically-high and genetically-low W and D scores among all W and D scores. These data are summarized for the 8 children's groups and the adult group in Tables II and III.

As can be seen in these Tables, the proportion of Whole responses among all responses (W%) decreases significantly from 3 to 7 years, and then increases slightly in the adult group. That is, the youngest children see their world in a global fashion, while the older children are non-whole, or detail, perceivers. Among the 6 year olds a new and striking increase in Dd scores is observed, continuing up to the 10 year olds, with such responses dropping out in the adult group. The proportion of Usual Detail scores increases up to 7 or 8 years, and then seems to level off. From this point of view, and especially when comparisons with adults are made, the youngest children react to the whole-aspects of perceptual stimuli in their world, and gradually come to react to larger (4, 5 years) and then to smaller parts (6 years) of these same stimuli. In terms of the parts of stimuli to which they react, (W%, D%, Dd%), children's perception becomes more differentiated with age, first rather grossly (D scores) and then more and more finely and more fragmentary (Dd scores).

When the quality of Whole and Detail scores [3] is examined, the proportion of genetically-high scores is observed to increase regularly with age from 3 years to adulthood. Since the genetically-high scores reflect the level of integrative and organizing operation by the subject, it can be said that perception becomes more hierarchically integrated and organized with age. Although the perception of the adult has been noted to be more all-inclusive than that of the 7-10 year old child, these Whole responses are vastly different in quality from the globality of the 3-5 year old. The percepts of the oldest children and the adults are composed of separate details integrated together into a larger whole. The adult's perception is most often a reflection of synthesis of parts that have been separately

TABLE II—Median Values of R, W%, D%, Dd%, and % High W, % High D, % Low W, % Low D for Each Age Group

Age	R	%W	%D	%Dd	%High W	%HighD	%LowW	%LowD
3	13.0	68.0	30.0	0.0	22.2	25.0	75.0	64.8
4	15.0	54.5	43.0	3.0	17.2	25.0	64.8	62.5
5	17.0	44.5	50.0	2.5	35.4	37.5	46.5	43.8
6	17.0	30.0	55.0	13.0	38.9	50.0	33.0	36.0
7	35.5	8.5	61.5	19.5	50.0	60.0	8.5	30.5
8	34.5	3.5	69.0	16.0	66.7	58.0	5.5	25.0
9	27.5	10.5	71.5	10.0	61.7	64.0	6.3	27.5
10	27.5	11.5	76.0	11.0	63.4	61.5	20.0	30.0
Adults	19.0	25.5	67.0	4.0	83.0	76.0	12.0	24.0

[3] See Tables II, III, IV, V, VI, VII.

TABLE III—Probability Values for Inter-Group Comparisons: R, %W, %D, %Dd, Genetically High and Low W's, D's P Values

Age Groups Compared	R	%W/R	%D/R	%Dd/R	%HiW/W	%LoW/W	%HiD/D	%LoD/D
3 vs 4	••	.02-.01	.10-.05					
3 5	.05-.02	<.01	<.01			<.01		.10-.05
3 6	.10-.05	<.01		.02-.01				
4 5	.10-.05					.10-.05		.02-.01
4 6		.10-.05	.02-.01	.10-.05		.10-.05	<.01	<.01
5 6				.02-.01			.10-.05	
5 7	<.01	<.01		.02-.01		<.01	.10-.05	.10-.05
6 7	<.01	.02-.01		.02-.01		.02-.01	.10-.05	
6 8	<.01	<.01	<.01				.10-.05	
7 8								
7 9			.10-.05	.02-.01				
8 9								
8 10								
9 10								
7 10		<.01	.02-.01	.05-.02				
6 10	.02-.01							
3 10					<.01	<.01	<.01	<.01
A •vs 3-5	.05-.02	<.01	<.01		<.01	<.01	<.01	<.01
A 6			<.01	.02-.01	<.01	<.01	<.01	<.01
A 7	<.01	.05-.02		<.01	<.01	.10-.05	<.01	<.01
A 8	<.01	.05-.02		<.01	<.01	.05-.02	<.01	<.01
A 9	.05-.02	.02-.01	.05-.02	.05-.02	.10-.05	.10-.05	.02-.01	.05-.02
A 10	.05-.02	.05-.02	.10-.05	.10-.05		.10-.05	<.01	<.01

• "A" refers to the group of 30 normal adults.

•• Wherever there is no value for P, an insignificant value is found, i.e., greater than .10.

TABLE IV—Median Values of Types of Whole Scores (Median Per Cent of All Whole Responses) by Age Group

Age	%W++	%W+	%Wm	%Wv	%W−	%W a	%DW
3	0 (0.)*	5.0	13.4	0	57.8	0 (20.)	11.1
4	0 (0.)	0	10.3	11.8	34.0	0 (40.)	9.0
5	0 (10.)	8.5	21.0	0	31.0	0 (30.)	6.0
6	0 (5.)	0	28.0	11.0	19.0	0 (40.)	0
7	0 (10.)	0	34.5	4.5	8.5	0 (10.)	0
8	0 (10.)	0	46.5	0	5.5	0 (0.)	0
9	0 (35.)	0	41.5	0	6.5	0 (5.)	0
10	0 (25.)	4.0	33.0	0	20.0	0 (5.)	0
Adults	0 (27.)	13.0	50.0	0	0	0 (0.)	0

* The parenthesized figures indicate the per cent of individuals in each age group that give the particular score.

TABLE V—Probability Values for Inter-Group Comparisons in Each Type of Whole Response (P Values)

Groups Compar'd	%W++/W	%W+/W	%Wm/W	%Wv/W	%W−/W	%Wa/W	%DW/W
3 vs 4				.02-.01			
3 5					.02-.01		
3 6			.02-.01		.02-.01		
3 9	.02-.01						
3 10	.10-.05						
4 5							
4 6			.02-.01				
4 7						.10-.05	
4 8			.10-.05				
5 6							
5 7		.05-.02					
5 8						.05-.02	
6 7							
6 8				<.01			<.01
7 8				.02-.01			
7 9							
8 9				.05-.02			
8 10							
9 10		.10-.05					
4 10				.05-.02			
5 10							
6 10							
7 10							
3 6-10							<.01
4 6-10							<.01
5 6-10							.05-.02
A vs 3-5	<.01	.05-.02	<.01	<.01	<.01	<.01	<.01
A 6	.10-.05	.10-.05	<.01		<.01	<.01	
A 7		.05-.02	.10-.05				
A 8		.10-.05			.10-.05		
A 9		.02-.01					
A 10				.10-.05	.10-.05		

perceived and put together, rather than the almost formless and partless Whole percepts of the young child. Moreover, when the 9 or 10 year old or the adult gives a response to a part of an inkblot, it is generally a sub-whole that would not exist but for the parts—the details—of which it is made. This kind of perception, defined to show the integration of "parts" into "wholes," increases in proportion from the younger age groups to

TABLE VI—Median Values of Types of Usual Detail Scores (Median Per Cent of All D Responses) by Age Group

Age	%D++	%D+	%Dm	%Dv	%D−	%Da	%DdD
3	0 (0.)*	0	18.0	0	53.5	0 (20.)	0 (5.)
4	0 (0.)	0	20.0	0	54.0	0 (35.)	0 (25.)
5	0 (0.)	9.5	33.3	10.0	33.8	0 (15.)	0 (25.)
6	0 (5.)	3.0	46.5	5.5	31.0	0 (30.)	0 (35.)
7	0 (5.)	4.5	52.5	11.0	22.0	3.0 (60.)	0 (30.)
8	0 (15.)	7.0	48.0	10.5	25.0	0 (20.)	0 (25.)
9	0 (30.)	8.5	51.5	8.0	23.5	0 (10.)	0 (15.)
10	0 (25.)	11.5	51.0	8.0	23.5	0 (40.)	0 (10.)
A	0 (13.)	18.0	60.0	5.0	16.0	0 (7.)	0 (7.)

* The parenthesized figures indicate the per cent of individuals in each age group giving the particular score.

TABLE VII—Probability Values for Inter-Group Comparisons in Each of the Types of Usual Detail Responses

Groups Compared	P Values %D++/D	%D+/D	%Dm/D	%Dv/D	%D−/D	%Da/D	%DdD/D
3 vs 4				.10-.05			
3 5		.10-.05		<.01	.02-.01		
3 6			<.01		<.01		
3 7		<.01		<.01	<.01	.05-.02	
3 9							
3 10	.10-.05	<.01		<.01	<.01		
4 5		.10-.05	.10-.05		.10-.05		
4 6			<.01		.10-.05		
4 7							
4 8							
5 6			.10-.05				
5 7			.02-.01		.10-.05		
5 8							
6 7				.10-.05			
6 8							
7 8							
7 9	.10-.05			.10-.05			
8 9							
8 10							
9 10						.10-.05	
6 10							
7 10							
5 10			.10-.05				
A vs 3-5		<.01	<.01		<.01	.05-.02	
A 6		.02-.01	.02-.01		<.01	.02-.01	.05-.02
A 7		<.01		.05-.02	.05-.02	<.01	.10-.05
A 8		.02-.01			<.01		
A 9		.05-.02			<.01		
A 10			.10-.05		.02-.01	<.01	

the older ones, and the proportion of immature kinds of perception, those reflecting syncretic, diffuse, and amorphous perceptual processes, decreases with age. In terms of the basic theory, perception becomes more hierarchically integrated, more composed of parts subordinated in a whole percept, as the children are older.

This does not mean that developmental changes are completely gradual and regular, showing an even progression from one year level to another. Development seems rather to occur in leaps and bounds, with changes of different kinds taking place at different ages. Development seems to be saltatory as much as gradual.

The three-year-olds are Whole-perceivers; they see few details and their perception is best described qualitatively as immature, inflexible, undifferentiated.

The 4 and 5 year olds together are different from the three year olds: they react less in terms of Wholes and more often notice and comment on the parts. By five years they have shown an increase in detailed interest in their environment, although they are not markedly more mature in terms of quality of perception.

At 6 years another and distinct change is occurring: without a corresponding increase in the number of responses, there is an abrupt and marked increase in perceptual responses to the small and rarely-noticed areas in the blots. These children are suddenly attracted to tiny details, which they do not integrate into larger wholes, but which they see as separate and alone. This increase in detail-perception continues through 7 and 8 years, always at the expense of the work of integrating all parts of the stimulus into an all-encompassing percept. In their Rorschachs, these children give Whole responses (when they do) mostly by listing all the parts of an object or person, without directly indicating that the whole percept has been seen as an integrated entity. These three age groups, 6-8 years, have another common quality: they are the ages in which the proportion of mature percepts comes into ascendency. In this transitional group the proportion of genetically high scores becomes significantly larger than the proportion of genetically-low scores.

Other changes, shown in Table VIII, are observed in this transitional group, shedding light on the direction of developmental movement. The quality of perceptual reactions to rare and tiny areas, now coming into appearance, shows a developmental sequence: when these Dd scores are at first frequent, they include a large proportion of the descriptive and physiognomic responses, which drop out among the 7-10 year olds. That is, the latest-appearing response locations show in another form the same kind of genetic trend that has been seen in the earliest-appearing locations (the W and D scores), but the immature quality lasts for a shorter time—these children are already older and more mature.

The distinguishing mark of the 6-8 year olds, then, is the proportionate part played in their perceptual behavior by analytic operations. In reacting to the larger details of their world this middle

TABLE VIII—% (pDd plus dDd/all Dd), Content Score, and Number of Subjects Earning HDX and/or ADX, and Fabulized Combinations for Each Age Group

Age:	% (pDd plus dDd/all Dd)	Content Score	Scores Hdx &/or Adx	& Contams. Fab. Combs.
3	0.0	5.0	0	2
4	17.6	6.0	1	10
5	15.4	7.3	1	14
6	32.9	8.5	5	5
7	15.8	14.0	9	9
8	12.8	11.3	10	9
9	10.6	10.8	9	7
10	10.7	11.5	7	3
Adults	4.2	8.3	2	2

TABLE IX—Probability Values For Inter-Group Comparisons: Number of Content Categories

Age Groups Compared	P
3 vs 4	
3 5	
3 7	<.01
4 5	
4 6	.10-.05
5 6	
5 7	<.01
6 7	<.01
6 8	.02-.01
7 8	.10-.05
7 9	.10-.05
8 9	
8 10	
9 10	
7 10	.10-.05
3 10	<.01
6 10	.02-.01
A vs 3-5	<.01
A 6	
A 7	<.01
A 8	.05-.02
A 9	
A 10	.05-.02

group of children do often synthesize parts into wholes, but by and large their perception reflects analysis alone. It is almost as if these children were going out of their way to react to parts *qua* parts, and only later on (9, 10 years, adulthood) will they turn to the work of synthesizing these details and parts into larger percepts.

Another trend emphasizing the lack of integrative work among the middle group of children is shown in the number of individuals in each age group earning Hdx and Adx scores. In reacting to a part of a usual area with part of a usual content, the child is failing or refusing to complete the integration of parts into larger wholes. These responses are given by more 6-10 year olds than by the younger children or by the adults, who go on from the nucleus of the x-response to integrate it into a larger totality. In confirmation it may be pointed out that there are fewer W+ and D+ scores among the 6-8 year olds than among the adults.

In general, the special mark of this transitional level of perceptual reaction is that an adult level of differentiation has been attained, without perception as yet revealing the degree of integration and hierarchic organization characteristic of the adult. This suggests a theoretical implication: that in the progression of development the sequence is from a global, diffuse, undifferentiated stage through a differentiated and discrete stage (analytic), to a level of hierarchically integrated and articulated performance and functioning (synthetic).

At 9 years another change has started: a decrease in reactions to details alone, and a re-appearance of percepts integrating the whole of the stimulus, this time in a markedly mature fashion. Although they are not remarkably different from the middle age group of children, the 9 and 10 year olds are showing more integrative, synthetic, and organizing work in their perception. It should be noted that these youngsters display a decrease in content variety, a result contradicting Dr. Friedman's interpretation of content as a function of "experience in the world." [4]

Between this fourth level of perceptual operation and the perception characteristic of adults there is a gap composed of the years of adolescence, but by the time adulthood is reached the gap is in quality as well as in years. Adults relatively rarely acknowledge percepts that are immature in structure; they relatively rarely react to the tiny details of a stimulus; they rarely see parts of their world as

[4] See Tables VIII, IX.

having physiognomic or "thing-of-action" qualities. Their perception is more differentiated than that of the youngest children, and more integrated and organized than that of the oldest children. Adult perception, with its reduced number of responses, is apparently characterized by the selection from among parts and details of those that fit together or can be fitted together. The adult synthesizes, integrates, what he has selected, rather than reacting to whatever happens to be there. This can also be seen in the marked loading of Fabulized Combinations and Contaminations in the age groups from 4 to 8 years, and their marked rarity in the adult group (Table VIII).

On the basis of this description of the Rorschachs of 3-11 year old children and of adults, I have tried to demonstrate the usefulness of these Rorschach scores for describing some aspects of levels of psychological functioning.

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Perceptual Regression In Schizophrenia
An Hypothesis Suggested By the Use of the Rorschach Test

HOWARD FRIEDMAN, PH.D.[1]

The purpose of this study was to investigate certain aspects of perceptual functioning in schizophrenic patients which suggest that regression has taken place. It was felt that perception would be a fruitful area of investigation because perceptual tests can be analyzed with greater precision and because they provide more readily quantifiable data than do incidents of thinking and reasoning which have been the main sources of study in the past.

The hypothesis advanced here is that schizophrenic patients, in the structural aspects of their perception, function at a genetically lower level, similar to, but not identical with, that of young children. Their mode of perception is in some respects indistinguishable from that of the child, while in others it retains unique and characteristic elements. Substantial vestiges of a mode of functioning more typical of a higher genetic level can be discerned. The entire phenomenon is construed as indicating regression. Thus, as far as the structural aspects of perception are concerned, the organism, through regression, cannot reach a stage which is really identical with that which it passes in the normal course of ascending the genetic scale.

The concept of regression as employed in this study is substantially that held by Werner (1948). Regression can be understood as the relative accentuation of genetically lower levels within the individual as the higher and more recently developed levels, the result of a steadily increasing differentiation and hierarchic integration, become less dominant. However, "Just as any developmental stage preserves vestiges of the earlier stages from which it has emerged, so will any degeneration bear signs of the higher level from which it has retrogressed." Thus, it is a case of similarity rather than identity in comparisons of children and schizophrenics. The results of psychopathology exhibit a correspondence, in their formal structure, to the activities observed in general development. Thus, the application of genetic theory to psychopathology can be understood in the light of a parallelism which exists between general development and psychopathological phenomena.

PROCEDURE

The procedure consisted of the analysis of certain structural aspects of the Rorschach Test protocols of 30 patients with schizophrenic psychosis, 30 normal children, and 30 normal adults. In this study, the Rorschach Test was utilized solely as a means for investigating perceptual functioning. In all cases, the protocols were ob-

[1] Clinical Psychologist, Cushing Veterans Administration Hospital, Framingham, Mass.

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tained by the individual administration of the standard series of ten cards, and except with the children, the administration technique of either Klopfer and Kelley (1942) or Beck (1949) was used.

Table I provides data as to the age, education, and IQ of the subjects, all of whom are white, male, and American-born. The attempt was made to obtain as closely equivalent groups as possible. The differences in age and IQ between the normal adults and schizophrenics are not statistically significant; the difference in years of education, although small, is significant at the 1% level of confidence.

TABLE I—Age, IQ, and Years of Education of All Groups

	Normal Adults	Schizophrenics	Children
No. of subjects	30	30	30
Age			
Range	22- 40	20- 39	3;0-5;3
Median	29	25	4:2
IQ			
Range	88-120	85-118	87-120
Median	106	101	108
Yrs. of Educ.			
Range	10- 16	7- 16	
Median	12	10	

Twenty - four of the normal adults were employees in a variety of sections of a Veterans Administration hospital, and six were employees of a private industrial concern. A medical history for each was obtained by interview. As far as could be determined, none of these cases had any history of treatment for, or complaints of, neuropsychiatric or psychosomatic ailments.

The children were all nursery school pupils, and there was no evidence that they were anything but healthy normal children. Administration of the Rorschach Test was modified in that the language of the instructions was simplified and shortened. A typical set of instructions was: "I have some cards here with pictures on them. Can you tell me all the things it looks like?" If only one response was given, the child was urged to tell what else it looked like. The inquiry period was instituted after the presentation of each card. It was felt that some such modification was essential if any scorable protocol was to be obtained.

The schizophrenic group consisted of 16 patients diagnosed as catatonic, 12 as hebephrenic, and two as mixed hebephrenic and catatonic. The case histories revealed that, at the time of diagnosis and testing, there were no other neuropsychiatric or major medical conditions evident. The restriction of the group to these two sub-types was for the purpose of obtaining the most representative clinical types of schizophrenia.

In the analysis of the Rorschach protocols, scores are utilized which, it is felt, come as close to the purely structural aspects of perceptual functioning as possible. In the defining and construction of many of these scores, I leaned heavily upon the thinking of Rapaport, Dworetzki, and Beck—all of whom in some way, have emphasized the variety of psychological activity contained within the usual unitary location scores. Although, in some cases, the scores in this study represent a composite picture, or modification,

of types noted by these authors, it has been necessary to either refine or re-define them for greater precision. New scores were developed to reveal further the variety of perceptual functioning.

In the following, the criteria for all scores utilized in this study are defined, and examples of each score, taken from the test protocols, are given. The Usual Detail (D) and Rare Detail (Dd) blot areas are those delineated by Beck (1949). The plus and minus form quality was determined primarily from Beck's tables, and in those few cases in which these did not suffice, the tables published by Hertz (1946) were used.

Wa: an amorphous response in which the shape of the blot plays no determinable role. Such responses are based solely on chromatic or achromatic aspects of the blot, and in customary scoring procedure, no form element would be included in the score.

Ex: Card I, "black paint"
Card II, "sort of looks like some football team colors—black and red"

Wv: a vague response in which there is a diffuse general impression of the blot. Although some form element is present, it is of such an unspecific nature that almost any perceptual form is adequate to encompass the content.

Ex: Card II, "a rock formation"
Card I, "could be an island — with water in between and water surrounding it on the outside of the island"

W−: a response in which the content produced requires a definite specific form, which, however, is not provided by the blot. (Goodness of match between blot and content is based upon the plus and minus form tables mentioned before)

Ex: Card IV, "a starfish"
Card I, "frog"

DW: Rorschach's confabulatory response, in which "a single detail, more or less clearly perceived, is used as the basis for the interpretation of the whole picture, giving very little consideration to the other parts of the figure" (Rorschach 1942).

Ex: Card IV, "a monkey, a chinchilla," solely on the basis of seeing the top central area as the face of a monkey
Card IV, "a boat" solely on the basis of seeing the lower projecting central area as "the front"

Wm: a mediocre response in which the gross outline and articulation of an unbroken blot are taken into account so that the specific form implied in the content matches the blot.

Ex: Card V. "a bat"
Card I, "a mask"

W+: a response in which all the discrete portions of a broken blot are combined into a unifying whole, and in which the specific form implied in the content matches the blot.

Ex: Card II, "two fellows at a bar toasting each other"
Card VIII, "a sail boat"

W++: a response in which a unitary blot is perceptually articulated and then reintegrated into a well-differentiated unifying whole, the specific form of which matches the blot.

Ex: Card V, "a man dressed up in a grasshopper suit on skates,—the finale of a show, and there's two girls resting in his arms."
Card I, "can imagine it's a fountain with 2 dogs on each end . . "

A "broken card is considered as one in which the white background completely surrounds a Usual Detail (D), or the white background isolates the majority of a Usual Detail from the remainder of the blot, or where a major portion of white background intervenes between the two lateral halves of the total blot. Thus, Cards I, IV, V, VI, and IX are considered unbroken, and Cards II, III, VII, VIII, and X broken. It should be noted then, that although Wa, Wv, W−, and DW can occur on all cards, Wm and W++ can be scored only on unbroken cards, and W+ only on broken cards. Al-

though normally card VII cannot yield a Wm score, it has been found necessary to allow a certain few exceptions. This card brings forth, in a few cases, relatively clear-cut "schematic" W responses in which the perceptual functioning is seemingly governed solely by a general contour feature of the blot, as its "U" shape. Such W responses, as "harbor," "bridge," "bowl," are scored Wm, for it is felt that the gross outline of the contour is clearly involved, rather than any true integration of discrete portions.

The criteria for the W responses apply to the D responses, except, of course, that the blot area which is referred to is a Usual Detail. Consequently, with the exception of the D+ score which requires a slightly modified definition, only examples will be provided for the D scores.

Da: Ex: Card II, top red area, "Fire"
Card X, blue, yellow, brown, and green areas, "That's lighting rooms—lights"

Dv: Ex: Card IX, large green area, "looks like a map of some sort"
Card X, blue area, "that's water . . . a splash of water"

D–: Ex: Card IX, large top orange area, "looks like sea lions"
Card VIII, side pink areas, "That's a bee"

DdD: Ex: Card X, large pink area, "cocoons of worms" solely on the basis of the rounded top edge outline
Card II, one lateral large black area, "looks like an elephant to me" solely on the basis of an outer edge outline detail as the "head"

Dm: Ex: Card III, red center area, "Suggests a bow tie"
Card X, outer yellow area, "This is a little bird"

D+: a response in which two or more discrete blot areas (two or more D) are combined into one percept, the specific form of which matches the blot.
Ex: Card VIII, the side red figures and top center area, "two rats climbing up on the tree—simultaneously, one on each side"
Card III, all black areas, "two men beating drums as in a tribal dance . . ."

D++: Ex: Card IX, large green area, "These here look like comedy caricatures—person riding on some sort of animal"
Card IX, orange area designated as a man with hat blowing a bugle

FaC: a Fabulized Combination in which two or more acceptably interpreted areas are combined, on the basis of spatial relationship, into one absurd percept.
Ex: Card VIII, one lateral red area interpreted as a "tiger," the other as a "grapefruit," remainder of blot as a "church," and response becomes, "This is a funny church and the grapefruit is climbing up the church."
Card II, red interpreted as fire, black as animal's face with center white space as mouth, and response becomes, "It's fire and it's catching on to an animal (onto his chin) cause here's his mouth"

CoR: a Contaminated response, in which two interpretations to the same area are fused into one.
Ex: Card V, entire blot area seen as a "beetle," then seen as a "bear," and response immediately becomes "a beetle near a bear"
Card IV, entire blot seen as "front of a bug," then as "front of an ox," and response immediately becomes "Oh, a front of a bug-ox."

Perseveration Score: Following Phillips and Elmadjian (1947), a Perseveration percentage was determined by dividing the number of perseverated responses by the total number of responses and multiplying by 100. Score values for perseverated responses were arrived at as follows: "If a scorable response is

repeated identically, even if on a later card, a score of 1.0 is given to the second interpretation. If it is repeated a third time, a score of 1.0 is again given, and so on. More than one content can be scored for perseveration. If a response content contains two major elements and only one of these is perseverated, the perseveration score is only 0.5. For example, if the response, 'hipbone of a woman,' is repeated in a record, this repetition is scored 1.0; but if only 'hipbone' or 'hipbone of a man' is given as another interpretation; this is scored 0.5. If a response given as a new interpretation occurs in the inquiry and this is virtually identical perseveration of a previously elicited response, the score is 0.5." The Perseveration percentage calculated on this basis became, in this study, the Perseveration Score.

No. of Content Categories: A score of 1.0 is given for each type of content within a protocol regardless of the number of times it occurs. If a new type of content appears as a secondary content score in a response, it is given a score of 0.5, regardless of the number of times it occurs; for example, the response, "a man dressed in evening clothes," is scored 1.0 for the primary content, Human, if this has not appeared before, and 0.5 for the secondary content, Clothing, if this is its first appearance in the record. Further use, in the record, of the content categories Human and Clothing receive no additional score values. Content of responses was classified according to the categories in Beck (1949), and one additional category, "x-ray," was found useful.

The reliability of these criteria for the variety of location scores and for the Fabulized Combinations and Contaminations was checked by the use of independent judges. In addition to myself, three other judges independently scored the first 20 records of each group of subjects. Thus, 60 records which yielded 1138 responses showed 91.6% agreement between judges 1 and 2; 89.7% between judges 1 and 3; 91.4% between judges 1 and 4; 95.3% between judges 2 and 3; 94.8% between judges 2 and 4; and 95.5% between judges 3 and 4. It should be noted that included within the disagreements were those few cases in which the basis for disagreement was extraneous to the criteria which were being checked; for example, cases in which the judges disagreed upon the scorability of a response.

All protocols in this study have a minimum of ten responses. Rorschach records of subjects who gave less were rejected. This was deemed advisable for two reasons: a) to assure sufficient data for adequate statistical treatment, and b) as noted by Phillips (1949), not all Rorschach records reflect directly the psychotic process, "the patient may attempt and manage to keep the psychotic process relatively encapsulated, a situation sometimes seen in patients who are in an active struggle against revealing psychotic material. In such cases, one sees in the Rorschach protocol primarily signs of anxiety, signs of an ego which is reacting to a threat to its existence by a more careful and critical exercise of judgment than usual." Such records are usually of diminished productivity, generally below ten responses, and reflect the patient's readiness to deal only with what is sure and safe. All resources are mustered to present only the relatively minor intact portion of the personality to the world. Consequently, lumping such records together with the more common schizophrenic protocols, and then examining them from the non-interpretive approach of this study, would lead to considerable confusion in the findings.

The analysis of the responses was confined to those produced in the Free Association period. The material provided by the Inquiry period was used only for the Perseveration Score, and to aid in those responses for which the Free

Association could not provide all the evidence for adequate scoring.

Results and Discussion

In the attempt to understand the findings in the light of regression, it is necessary first to define the concept; second, to specify the nature of the general theoretical framework within which the construct exists; and third, to link a number of empirical phenomena to such a framework. For the first, a definition was attempted before: regression is understood as the relative accentuation of genetically lower levels within the individual as the higher and more recently developed levels, the result of a steadily increasing differentiation and hierarchic integration, become less dominant.

The theoretical framework is the schema of differentiation and hierarchic integration as developed in genetic psychology by Werner (1948). In brief, this formulation construes mental organization in terms of developmental movement which is in the direction of increasing differentiation and hierarchization. Certain paired concepts: "syncretic-discrete," "diffuse-articulated," "indefinite-definite," "rigid-flexible," and "labile-stable" exemplify this genetic change.

In the following discussion of the results, the attempt will be made to set up possible reasonable links between certain empirical data, namely the variety of test scores utilized, and the aforementioned framework. This would then allow the test findings of the different groups to be compared in terms relevant to the meaning of regression as employed in this study.

All results were analyzed for their statistical significance by means of the Chi-square test, for which a uniform procedure was used throughout. When two groups were compared, the score closest to the median point of the combined distributions was used as the "cutting point." A fourfold table was thus constructed and any two groups were compared for the number of cases having scores above and below this point. Invoking the "null hypothesis" would be tantamount to stating that, in each of the two groups, the number of cases lying above, and below, the "cutting point" would be the same, or close to it. In other words, in such a case, the median value of the distributions combined is very close to the median values of the individual groups, and the Chi square value approaches zero. As the number of cases falling above the "cutting point" in one group becomes larger than the number of cases in the other group, the Chi square value increases, and the groups tend to separate out. When the Chi square value becomes significant, i.e., when the chances in a hundred that the Chi square of the observed size could occur by chance are very few, the "null hypothesis" may be discarded. As advised by McNemar (1949), in cases where an expected frequency value fell below 10, Yates' correction for continuity was applied. All table entries, with the exception of those under the heading "Median," refer to P, the probability that the obtained Chi square value is significant.

Table II indicates the degree to which the three groups in the present study differ from one another in W%, D%, Dd%, and number of responses (R).

The only significant difference in the total number of responses is between the children and normal adults. There are no significant differences between the groups in Dd%. The Dd responses are given

TABLE II—Significance of Differences Between Groups in Number of Responses and in Percentage of Whole (W), Usual Detail (D), and Rare Detail (Dd) Responses

	W/R%	D/R%	Dd/R%	R
*S-N	<.001	<.001	>.10	>.10
S-C	>.10	>.10	>.10	.10-.05
C-N	<.001	<.001	>.10	.05-.02
Median				
N	25%	67%	4%	19
S	46%	45%	4%	20
C	54%	43%	0	15

* In all tables S stands for the schizophrenic group, N for the normal adult group, and C for the group of children. The hyphenation of two groups, as S-N, indicates comparison between the respective groups.

no further consideration beyond this point. Their frequency is so low that intensive analysis is not feasible on a statistical basis, and the absence of adequate norms for responses given to those areas precludes placing them within the framework established for the W's and D's. In comparison with the normal adult group, the children respond, to a significantly higher degree, to perceptual stimuli in terms of wholes. The schizophrenics, in this regard, react in a similar manner. This, however, is not the sole, or even the preponderant type of perceptual activity of the children or schizophrenics. In intergroup relationships between Whole and non-Whole responses as observed in Table III, we find that although normal adults give a significantly higher amount of non-Wholes than Wholes, the other two groups show no statistically significant differences between these two types of responses.

These general observations in regard to the overall W% disclose little about the nature of the perceptual activity in the W response. Integrative activity as well as primitive globality may be contained within such an overall capacity for "wholeness." Although most workers in Rorschach testing have been aware of this inclusion of more than single psychological activity within a single scoring category, relatively few have made a strong issue of it. That such may be true for the D responses has not been considered to any determinable extent. It is necessary then to turn to an analysis which reveals qualitative differences in W responses and in D responses.

A first grosser analysis, however, may be made to shed light on the differences in the makeup of the W%. Table IV shows the incidence, among the W and D responses, of the genetically low types of responses as a group, and of the combined mature types. The genetically low types of W responses consist of the Wa, Wv, W− and DW; and the mature types are the W++, W+ and Wm. The corresponding division is made in the genetically low and mature D responses. Thus, the breakdown of the W% into genetically low and mature response percentages reveals that within the children group, the genetically low type of "wholeness" is significantly greater in quantity than the mature type; and within the normal adult group, the converse relationship obtains. A similar breakdown of the D% sheds light on another question raised by the previous analysis of the Whole versus non-Whole responses.

For children, the nature of the ability to respond to discrete blot

TABLE III—Significance of Differences Between Whole (W) and Non-Whole (Non-W) Responses in Each Group

	W − nonW	Median W	Median nonW
N	<.001	6	12
S	>.10	9	11
C	>.10	9	7

TABLE IV—Significance of Differences Between Genetically Low and Mature Types of Whole (W) and Usual Detail (D) Responses in Normal Adults and Children

	W	D
	Gen. low—mature	Gen. low—mature
N	<.001	<.001
C	<.001	.01-.001

	Median		Median	
	Gen. low	mature	Gen. low	mature
N	1	5	3	10
S	6	1	4	2

TABLE V*—Significance of Differences Between Groups In All Scores

	S-N	S-C	C-N	Median N	Median S	Median C
Wa/W	<.001	>.10	.01-.001	0	0	0
Da/D	>.10*	>.10	.10-.05	0	0	0
W−/W	<.001	.10-.05	<.001	0	22%	41%
D−/D	.05 -.02	.05-.02	<.001	14%	26%	46%
DW/W	<.001	>.10	<.001	0	0	11%
DdD/D	>.10*	>.10*	>.10*	0	0	0
W+/W	.10 -.05	>.10	.02-.01	13%	0	0
D+/D	.05 -.02	<.001	<.001	16%	10%	0
W++/W	.10 -.05	>.10*	.01-.001	0	0	0
D++/D	>.10*	>.10*	>.10*	0	0	0
Wv/W	.05 -.02	.05-.02	>.10	0	17%	0
Dv/D	.10 -.05	>.10	>.10	0	10%	0
Wm/W	<.001	.01-.001	<.001	50%	31%	14%
Dm/D	<.001	.05-.02	<.001	64%	43%	31%
FaC+ CoR/R	.01-.001	>.10	.01-.001	0	0	0
Persev. Score	.01-.001	>.10	<.001	13.9%	22.6%	24.4%
No. of things persev.		.01-.001			5	3
No. of content categ.	>.10	.01-.001	.01-.001	8.0	9.0	5.5

* All figures bearing an asterisk are computed from Chi square tests which have two or more expected frequency values of less than five.

areas must be examined to determine whether this is a true capacity, brought about by adequate developmental maturity, for grasping details as parts in relation to each other and to the whole, or whether it is a reaction to parts as independent entities, i.e., discrete areas becoming, as it were, sub-wholes. In this regard Werner (1948), in a study of sensori-motor organization in children which involved copy-

ing of mosaic patterns, determined that in addition to homogeneous globality in graphic representation, there is a "chain-type" of reaction which deals with parts. However, this "chain-type" is distinguished by "the relative lack of definiteness in the relation of the parts. This is occasioned by the fact that these parts are experienced as global units . . . " In the analysis of various types of D responses, as seen in Table IV, it is evident that the children give a significantly higher percentage of D's of a genetically lower type. This suggests that they react to the non-whole areas, for the most part, as they react to the Wholes, i.e., with a relative predominance of primitive perceptual functioning. The normal adults, on the other hand, again show the responsiveness of opposite types. The distribution of their D's shows that mature types are significantly greater in quantity than the genetically low.

Table V presents the main body of results. The breakdown of the W's and D's is to be understood as revealing the proportion of a particular type of response in the makeup of the total W's or D's, as the case may be.

The Wa response may be considered to be an indicator of the most extremely diffuse global perception. Here, children and schizophrenics do not differ, and both groups are significantly higher in productivity of such responses than the normal adults. The schizophrenics have 11 cases with Wa responses, the children 10, and normal adults none.

As to the Amorphous D responses, it is found that schizophrenics and children are not differentiated statistically; the difference between children and normal adults approaches significance. The difference between schizophrenics and normal adults is of doubtful reliability due to the fact that two Chi square expected frequency values are less than 5. After correction for this, no statistically significant difference between the schizophrenics and the normal adults is revealed. Eight children, 6 schizophrenics, and 2 normal adults produce Da responses. On the whole, although the results for the Da run parallel to that of the Wa, the group differentiation is less marked. This difference between the Wa and Da findings may be interpreted as follows: it is possible that where perceptual organization is so genetically advanced as to permit some discreteness (D), amorphousness of response has already begun to wane; the groups are thus not separated out so sharply.

The W— response may partake strongly of the syncretic character of primitive perceptual organization. The term "syncretic" is defined by Werner (1949): "If several mental functions or phenomena, which could appear as distinct from each other in a mature state of consciousness, are merged without differentiation into one activity or into one phenomenon, we may speak of a *syncretic function* or *syncretic* phenomenon." Syncretic perceptual experience is a blend of motor-affective, sensory, and imaginal factors. Inner conditions bear the brunt of shaping the world. Syncretic perception implies that such inner conditions will lead to interpretations different from those typically given by a normal adult population. On the Rorschach Test, typical adult perception is represented by adequate, or plus, form perception. In an unpublished study by Phillips, it has been shown that the criteria for plus responses are certain typical requirements provided by the blot structure which is chosen for a

given percept. Therefore, the inability to match blot against percept suggests a syncretic type of perceptual functioning. There may be, further, a quality of lability in the minus response. Werner (1948) points to the lability in handling perceptual material exhibited by the child when he is faced with an unclearly defined objective situation, and attributes it to the greater readiness to shape things in accordance with his needs than is customary for the adult. Examination of the W−% reveals that the schizophrenics and children are not significantly different in this respect, and both show a significantly greater amount than the normal adults.

The D− responses distribute themselves in a similar manner between the three groups as is observed in the W− responses. However, there are some minor deviations. The D− responses show a levelling off of the sharp difference between schizophrenics and normal adults that has been observed with respect to the W− reactions. Moreover, the three groups tend to separate out significantly, with the schizophrenics falling between the higher D− frequency in the children and lower frequency in normal adults. The differences (levelling and significant separation) suggest that primitive syncretism and lability tend to permeate more completely the responses of the children, whereas schizophrenics still can be demarcated by perception reminiscent of higher genetic levels reached where discreteness or differentiation is of a more firmly established character.

The Confabulatory response (DW) may be considered a very characteristic representation of diffuse perceptual organization. Dworetzki (1939) has made a similar comment. Werner (1948) has aptly described this type of functioning by the phrase *"pars pro toto"* — "any part has the quality-of-the-whole." In the Confabulatory responses, as scored in this study, the Whole is perceived, but only because a part carries the burden of defining and justifying it. "Wholeness" is determined by the part, and the character of the part is inextricably interwoven with the Whole. The findings reveal that the children and schizophrenic groups are indistinguishable, and both are significantly higher in frequency of such responses than the normal adults. (Although the median values are the same for the normal adults and the schizophrenics, the former have no cases producing such responses, whereas the schizophrenics have 11 cases.)

Confabulatory trends in D responses (DdD) are relatively rare in all three groups. One half of all the Chi square frequency values are below 5, so that inter-group comparisons are of doubtful reliability. The results, as they stand, reveal no significant differences between the three groups, but children show 5 cases with DdD responses, the schizophrenics 4, and the normal adults 1. This points to differentiating trends, with respect to DdD, similar to that observed in the DW responses.

After having discussed the genetically lowest forms of responses, we can now turn to the most mature types of reactions.

Clearly integrative perceptual activity is revealed in the W+ responses. Here, a broken blot must be synthesized into a Whole which must meet the typical requirements for plus form as set by adult norms. A certain amount of differentiation is involved here, cognizance of discrete blot areas being necessary, but furthermore, subordination of these areas to the overall unifying

Whole is required. Children have significantly fewer responses than normal adults. Responses of this sort do not distinguish quantitatively between schizophrenics and children; normal adults and schizophrenics show a difference which approaches statistical significance. These data suggest that the functioning involved in the W+ responses is infrequently available to genetically undeveloped subjects, whereas presumably the schizophrenics have retained, although very slightly, the integrative perceptual capacity once possessed. It may be that pathological processes of regression somehow are modified by past developmental history.

The distribution of D+ percentages corresponds to that of the W+ percentages. However, here the groups separate themselves out much more distinctly than with respect to the W+%. In view of the significant difference between the schizophrenics and the children, as contrasted with the insignificant difference in the W+%, the suggestion again is that the greater perceptual discreteness of the schizophrenics is due to historico-genetic traces absent in the children. The D+ is relatively rare in children, but in the schizophrenics it is possible that once having attained some capacity for perceptual differentiation, it is not completely lost. It still identifies this group as of a once higher perceptual organization.

Probably the highest indication of differentiation and hierarchic integration resides in the W++ response. An objectively unitary blot must be differentiated into discrete portions and reintegrated into a unifying Whole. Here, the findings are generally the same, statistically, as those for the W+ responses, but it should be noted that not a single child was able to produce a W++ response.

The D++ responses occur so infrequently that the statistical findings are of doubtful reliability. One-half of the Chi square expected frequency values are 2 or less. In absolute figures, of the 90 cases in this study, only 4 normal adults are capable of producing this response. The intensive control, the fine differentiation and reintegration, all within a discrete area, seemingly is expressed only in genetically-mature perception.

We may now turn to what may be considered intermediate or transitional types of response which lie between the extreme forms of genetically low and mature responses, namely, the Vague and the Mediocre responses. The Wv, as well as the Wa, seem to be representatives of diffuse perceptual activity. No form requirements are placed upon the Amorphous response, but the Wv has certain very minimal general form requirements which are not tied to any specific structure, so that almost any blot structure can be utilized. Children and normal adults are not significantly different in productivity of Wv responses; schizophrenics have significantly more Wv responses than either normal adults or children. These findings are in seeming contradiction to expectations. However, it may be possible to understand them after an examination of the Wm responses. The Wm responses entail consideration for at least the crude outlines of the blot, together with meeting constant typical requirements in form. Such requirements are specific for the percept evoked, as compared with the non-specific requirements for the Wv. For the young child with his relatively undifferentiated perceptual activity, this type of response

(Wm) is difficult to obtain. There are statistically significant differences between all three groups on Wm responses, the schizophrenics occupying an intermediate position. The distribution of the Wm may aid in understanding the unexpected distribution of the Wv. Of all the W distributions, the Wm is the only one in which all three groups are significantly different from one another. That the Mediocre response is relatively difficult to produce by children and easier for schizophrenics is suggested by the significant difference between these two groups. It may be difficult to understand why there should also be a highly significant difference between schizophrenics and normal adults on these scores, inasmuch as the other mature W responses show no such clear-cut difference. This is particularly unexpected for the Wm responses since, of all the mature types of response, they seem to require the least integrative capacity. These considerations lead to the suggestion that some type of substitutive or displacing activity may be lowering the Wm findings in the schizophrenic group. Bearing this in mind, it becomes possible that the relatively frequent Wv in the schizophrenics may be the result of regressive diffuseness and vagueness interfering with percepts which, in the absence of such a process, might have been Wm responses. Thus, the Wm responses may represent, as it were, "a reservoir" which feeds the Wv responses. The children have no such fund of potentially displaceable percepts, for they do not yet possess the capacity, relatively speaking, to produce the genetically advanced Wm responses. The possibility of replacement of Wm by Wv is understandable in view of the similarity in structure between them. The differences between the two is a matter of congruence of percept with specific or non-specific blot requirements. The unexpected high frequency of Wv may be thus understood as due to the interference of regressive diffuseness of perception with the genetically-determined capacity of the schizophrenics to produce responses (Wm) which meet constant typical form requirements. The change, then, that occurs in the schizophrenics is in terms of a perception of the world that is less specifically structured.

The distribution of the Dv% goes in the same direction as that of the Wv%, although none of the inter-group differences are statistically significant. However, the difference between the schizophrenics and normal adults approaches significance. Thus, again a levelling off of the differences in a W% distribution is observed in the area of a D% distribution.

The Dm% distribution is quite similar to that of the Wm%, with but a slight tendency for the groups to be less clearly separable than was the case for the Wm%.

The W and D responses combined may be evaluated from the standpoint of Fabulized Combinations and Contaminations. In the Fabulized Combination there is a fusion of two percepts into one, solely on the basis of spatial contiguity. In Contaminations, spatial identity results in the fusion, into a single percept, of two percepts given to a single area. The Fabulized Combinations appear to be of a syncretic nature and exhibit a lability in perceptual activity where the fusion is determined by contiguity. In the ideational sphere, Werner (1948) notes that there is a primitive "magic of contiguity" which can be understood in the light of the relative instability of things in the primitive mentality.

The Contaminatory Responses may be considered even more direct representations of such activity. Here, the properties of two percepts merge and pervade each other, the subject being unable to stabilize them and keep them apart. Since each type of response is relatively infrequent, the Fabulized Combinations and Contaminations are combined for statistical purposes. When the two types are combined, it is found that schizophrenics and children cannot be distinguished, and both show a significantly greater amount than normal adults. (Although all three medians are zero, the children and schizophrenics each have 10 cases with such responses, the normal adults only 1.)

Werner (1948) points out that the more differentiated and hierarchically organized the mental structure of an organism, the more plastic or flexible its behavior. For the flexible individual, one would expect that with the variation of the Rorschach blots, the percepts should vary. More rigid individuals would show perseveration in spite of change of stimuli. The Perseveration score may provide a measure of such plasticity, or rigidity. Results show that children and schizophrenics are indistinguishable on the basis of quantity of perseveration, and both groups are significantly higher than normal adults. However, the question remains whether or not this rigidity of the schizophrenic is an indication of total regression, or whether there is, within the perseveration phenomenon, some sign which betrays the fact of a once higher genetic level. As will be observed later, the breadth of content of the responses provides the most striking example of interference with regression. Analagously, the Perseveration score was analyzed in terms of variety of things perseverated. Schizophrenics exhibit a significantly greater variety of things perseverated. In other words, children tend more to monotopical perseveration than do schizophrenics. This suggests that the schizophrenics have a greater capacity to vary their perceptual activity with changes in the blot structure. In comparison with children, there is at least a greater cognizance of changes in the stimulus situation. It is possible that this behavior represents the residue of a genetically higher plasticity.

One aspect of the Rorschach Test seems to be highly dependent upon experiential factors. This is the variety of content as determined by the number of content categories utilized. By virtue of having lived longer, a greater breadth of interests and an acquaintance with a wider variety of environmental material should distinguish the adult from the child. This, then, may provide a direct clue as to totality or non-totality of regression in schizophrenics. The results indicate that schizophrenics and normal adults are not significantly different, whereas the children are significantly lower than either of these groups.

However, the possibility that the number of content categories is not such an indication, but is rather, in large part, an expression of sheer productivity of the group, must be considered. In effect, there is by inspection a positive correlation, over the range of the samples, between number of responses and number of content categories. In part, this is an artifact produced by the limiting factor of number of responses which restricts, in those records having a low number of responses, the possible number of content categories. Another factor which tends to militate against

the use of simple correlational technique for the evaluation of such a relationship is the limited number of content categories possible, as against the theoretically unlimited number of responses. Consequently, the problem was attacked from several other standpoints.

For each inter-group comparison, pairs of cases were selected that were matched for number of responses. Since, on the basis of an exact match, only 12 pairs were found for schizophrenics vs. children, and 15 pairs each for schizophrenics vs. normal adults, and for normal adults vs. children, further matchings were made on the basis of gradually extending the intervals in which a match was allowed. Thus 5 different matchings for each inter-group comparison were made so that finally schizophrenics vs. children had 21 matched pairs, schizophrenics vs. normal adults 26, and normal adults vs. children 23. The maximum match-interval used, and that only in one inter-group comparison, was 10 responses. Once having done this, two techniques were used. First, "t" values were computed for the difference between the means of the number of content categories for each group of matched pairs, using Lindquist's (1940) formula for the significance of a difference in the means of related measures. It was found that of the 10 "t" values of the normal adults vs. children comparisons and the schizophrenic vs. children comparisons, 9 were significant at the 5% or less level, and 1 at the 10% level. All of the schizophrenic vs. normal adult "t" values were insignificant. The second technique used with the matched pairs was the rank-difference method of measuring correlation (Garrett 1947). A significant "rho" would point to the fact that the number of content categories correlates with number of responses. It was found that 13 values of "rho" were insignificant, while only 2 were significant at the 5% level.

The results did not support the inference that the differences in the number of content categories between the groups of subjects could be attributed to the differences in productivity as measured by number of responses.

Conclusions

On the whole, the results would suggest that the perceptual functioning of the schizophrenic, in its structural aspects, is intimately related to that of the child. From the point of view adopted in this study, its characteristics may be understood as those of a primitive globality, syncretism, lability, diffuseness, and rigidity. In the capacity for differentiation and hierarchic integration which marks the normal adult group, the schizophrenic group seems to suffer considerable impairment. Although there is this similarity to children, certain aspects of higher level functioning are identifiable. In terms of an interpretation in the light of regression, it would be possible that such aspects may be vestiges which point to the incompleteness of regression. Thus, the previous operation on a higher developmental level may not be completely erased. There would then be evidence of a previously established capacity for discreteness in perception that is beyond that for the child; there would also seem to be a certain residual plasticity observable in the psychotic group. That regression may not be complete is further suggested in one aspect of perceptual responsiveness which depends strongly on experiential factors: the variety of content with which the schizophrenics can respond to perceptual stimuli is significantly greater than that of children.

Thus, the examination of the many facets of the structural aspects of perception dealt with in this study leads to this conclusion: schizophrenics, in some respects, respond perceptually in a manner similar to that of children, and in other aspects, they occupy an inter-

mediate position between normal adults and children. This may be understood in terms of the hypothetical construct of regression. In this regard regression would appear patent, but not of such a total nature as to eradicate completely the history of the individual who has once operated on a higher genetic level.

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A Genetic Evaluation of Perceptual Structurization in Cerebral Pathology: An Investigation by Means of the Rorschach Test [1]

Cesareo D. Peña, Ph.D.
Veterans Administration Hospital, Northampton, Mass.

Introduction

While investigators in the field of cerebral pathology have concurred in the belief that loss of efficiency results from damage to the cerebral cortex, the characterization of such loss has assumed various forms (Halstead, 1949; Hebb, 1945; Hunt and Cofer, 1944; Klebanoff, 1945). Such terms as "general mental deterioration," "childishness," "loss of synthetic ability," and "loss of the categorical attitude" have been used to describe bchavioral changes accompanying cerebral lesions. The implication common to all these explanatory phrases is that there is present some degree of impairment of the higher mental functions.

Generally speaking, it has been within holistic or organismic orientations that genetic parallels have been drawn between neuropathological functioning and development in general. According to the evolutionary doctrine of Hughlings Jackson (as early as 1884) neuropathological phenomena represent the positive functioning of genetically lower levels of nervous activity as the result of "dissolutions of the highest centers" and the consequent "process of undevelopment." Von Monakow (1944), Head (1923, 1926), Goldstein (1939, 1941), and others also have attempted to show that the breakdown of higher regulative centers and the concomitant highlighted activity of genetically lower systems explain the reactions of a neurologically disturbed organism.

Some specific suggestions of formal developmental parallels to the perceptual activity of cortically damaged adults occur in such experimentation as that of Bender (1938) with visual-motor gestalten and in the writings of Werner (1948). Rorschach findings in studies of cerebral pathology have been presented generally in the form of empirically useful pathognomonic "signs," or patterns of performance (see References). Although genetic appraisals in the form of comparisons with normal adult performance have not been lacking, such genetic implications have not been supplemented by systematic reference to the perceptual performance of children.

The theoretical and empirical background pointing to a possible genetic evaluation of perceptual functioning in cerebral pathology seemed to call for a more systematic investigation. With the Rorschach scoring categories available as refined by Friedman (1950), in the context of Werner's theory of development, the following general hypothesis was advanced for experimental testing: that cerebral damage in adults is accompanied by the appearance, in perceptual structurization, of a relative increase in qualities seen in developmentally earlier levels than normal adulthood, with the simultaneous retention of traces of all the phases traversed in the course of development. The same general hypothesis

[1] From the Neuropsychiatric Service of Cushing Veterans Administration Hospital, Framingham, Mass., and Boston University, Boston, Mass.

was expected to hold for any other kind of pathology, such as schizophrenia, and in fact has been demonstrated in the studies of Friedman (1950) and Siegel (1951) with schizophrenic patients. The differentiation between the perceptual functioning of adults with cerebral damage and that of the chronic schizophrenics in Friedman's sample was expected to focus on a somewhat greater weighting toward the lower end of the genetic scale for the schizophrenics. The theoretical rationale for this anticipation is that cerebral damage in a normal adult occurs as a relatively extraneous event in his life without roots in the past, in contrast to what is usually considered to be a long-evolving, deeply entrenched, emotional distortion in the schizophrenic.

Procedure and Method of Analysis

The Rorschach protocols of 30 patients with cerebral pathology, 30 patients with hebephrenic or catatonic schizophrenia, 30 normal adults, and 169 normal children from 3 through 10 years of age were analyzed with particular emphasis on the scoring categories adopted in this program of research. All subjects were American-born white males.

The Rorschach and intelligence data for the schizophrenics, for the normal adults, and for 30 of the children from 3 to 5 years of age were made available by Friedman, who has already described the nature of those samples. The selection and testing of the other 139 children were accomplished in collaborative fashion by Drs. Hemmendinger, Siegel and the author.

The 30 patients with cerebral damage were tested, in the majority of cases by the writer, in three different Veterans Administration hospitals. These consisted of patients who at the time of testing were considered, by both a neurologist and a neurosurgeon, to be suffering from moderate or severe cerebral pathology, were relatively free from medical disorders not directly stemming from the brain damage, and were free from complicating psychological disturbances of neurotic or psychotic proportions. The case history material showed that these patients had led lives of normal socio-economic adjustment before incurring their damage. This group, therefore, could be considered normal in most respects except for the presence of definitely established cerebral damage. The group on the whole was marked by irreversible damage to brain tissue, occurring as the result of trauma, brain tumor, compression, or of necrosis due to cerebral ischemia. A secondary result in most of these instances was the presence of cerebral atrophy associated with loss of brain substance and gliosis. Damage was extensive, although referrable to various areas of the cerebral cortex. No limit was set as to the interval of time between the onset of damage and the time of testing, except that no patients showed a history of brain damage, hereditary or otherwise, before age 18, and no patient was tested in a confusional period.

The intelligence measures for the cortically damaged subjects were verbal tests which have been found to hold up best with this type of case and hence could be considered as more adequately reflecting their optimal capacity.

The 169 normal children were divided into eight age groups one year apart, from 3 through 10 years of age (see Table I). The number of children ranged from 20 to 22 at each year-level. Analysis of variance and 28 subsequent t-tests be-

TABLE I—The Range, Median, and Mean for Each Group in Regard to Age, Intelligence Quotients, and Years of Education

GROUPS:	Normal Adults	Cereb. Dam. Adults	Heb. & Cat. Schiz. Adults	Child Groups (by Chronological Age) 3	4	5	6	7	8	9	10
No. of SUBJECTS:	30	30	30	20	20	22	22	21	22	22	20
AGES:											
Range:	22-40	20-40	20-39	3:0-11	4:0-11	5:0-11	6:0-11	7:0-11	8:0-11	9:0-11	10:0-9
Median:	29	30	26	3:6.5	4:6.5	5:5.5	6:6.0	7:7.0	8:4.5	9:4.5	10:5.0
Mean:	29.4	29.8	27.4	3:6.3	4:6.2	5:5.2	6:5.6	7:7.0	8:4.7	9:4.6	10:4.8
IQ's:											
Range:	88-120	86-120	85-118	93-120	87-120	91-120	93-120	97-120	96-120	85-120	91-116
Median:	106	106.5	101	105	113	102	110	105	113.5	101.5	104
Mean:	104.9	104.6	100.0	107.2	109.8	103.0	108.7	107.0	112.1	103.6	103.8
YEARS OF EDUCATION:											
Range:	10-16	8-16	7-16								
Median:	12	10.5	10								
Mean:	12.4	10.6	10.5								

tween all possible pairs of groups showed four significant differences in I.Q. (at the .02 level or less) between child groups, the 4-year-olds being higher than the 5-year-olds, and the 8-year-old children higher than the 5-, 9-, and 10-year-old children. The range of group differences in mean I.Q. was in no case greater than nine I.Q. points. Analysis of variance revealed no significant differences among the groups in age distribution at each year-level.

No significant differences, by analysis of variance, appeared among the adult groups in I.Q. or in age. All I.Q.'s fell within the range of 85 to 120, as was true with the children. All ages were between 20 and 40. The normal adult group showed, by chi square, significantly more years of education than either pathological group, though the actual differences in medians were small.

The basic Rorschach scoring categories used to test the hypothesis included the Location Choice scores (W%, D%, and Dd%), the qualitative breakdown of Location Choice into genetically low W and D (i.e., Amorphous, Confabulatory, Minus, and Vague) and genetically high W and D (i.e., Mediocre, Plus, and Plus Plus), the Fusion responses, the Perseveration score, and the Variety-of-Content score—all as operationally defined by Friedman (1950) in terms of degrees of structural differentiation and organization. In addition, it was felt necessary to include several subsidiary measures of the alliance of content characteristics and certain modes of perceptual functioning. These were:

(1) *A Range-of-Perseveration score.* The tendency toward monotopical perseveration of specific contents was in this study reflected by the division of the Perseveration score (indicating the overall tendency to perseverate) by the number of content categories perseverated. The greater the resulting figure, the more decided the tendency to perseverate in one thing.

(2) *The relation of common content to mediocre perceptual functioning.* This relationship was determined in two ways: (a) by the percentage of the animal content categories combined (A+Ad+Aobj), representing the most common general content, in total number of Wm and of Dm, separately considered; and (b) by the percentage of Popular Responses (as listed by Beck (1949) in Wm and Dm.

(3) Finally, a *Form Score,* or *F%,* was taken as a measure of the variety of differential reactions to perceptual stimuli. This is the percentage of responses displaying no determinants other than sheer form aspects.

All the Rorschach responses used in this study were scored by at least three examiners, including the writer, and the scorings adopted were determined by majority agreement. The last four supplementary scores mentioned are ratios or percentages calculated from such agreed-upon scores.

Results

The statistical analysis of the data was conducted by the chi-square technique described by Friedman. Probability values of .02 or less were considered significant. P values between .10 and .02 were taken as indicative of tendencies toward difference. All the adult groups were compared with each other with respect to every scoring category employed. The pathological groups were placed along the genetic scale by comparison with each

TABLE II—Significance of Differences Between Groups in Per Cent of Whole (W), Usual Detail (D), and Rare Detail (Dd) Responses and in Total Number of Responses (R)

W%

Groups*	Medians	CD	S
		P Values	
3	68.0	.01	.01
4	54.2	.....	.....
5	44.4	.....	.....
6	30.3	.....	.10
7	8.8	.01	.001
8	6.6	.001	.001
9	10.4	.001	.001
10	11.6	.001	.001
N	25.1	.05	.001
CD	48.4		.....
S	45.4	.....	

D%

Groups	Medians	CD	S
		P Values	
3	30.1	.001	.001
4	42.8	.10	.....
5	50.0	.....	.....
6	54.2	.....	.10
7	61.0	.....	.01
8	66.7	.10	.01
9	71.0	.05	.001
10	76.2	.001	.001
N	66.7	.05	.001
CD	48.8		.....
S	45.4	.....	

Dd%

Groups	Medians	CD	S
		P Values	
3	0	.....	.....
4	0	.....	.....
5	5.2	.10	.....
6	12.7	.01	.01
7	19.3	.001	.01
8	14.5	.001	.001
9	9.8	.001	.05
10	10.9	.001	.05
N	4.0	.05	.....
CD	0		.02
S	3.4	.02	

R

Groups	Medians	CD	S
		P Values	
3	13.0	.....	.02
4	15.0	.....	.10
5	16.5	.05	.10
6	17.5	.10	.....
7	35.0	.001	.01
8	33.0	.001	.01
9	25.5	.01	.....
10	27.5	.001	.05
N	19.0	.05	.....
CD	14.5		.10
S	20.0	.10	

* In all tables and figures, N will represent normal adults, CD cerebrally damaged patients, and S hebephrenic and catatonic schizophrenics. Child groups will be indicated by numbers corresponding to their chronological age levels. A dotted line as a table entry will indicate P values greater than .10—i.e., non-significant.

of the child groups in the basic scoring categories, as well as in the Range-of-Perseveration score and the Form score.

The findings may be summarized in the following points:

1. *Location Choice (Table II).* The cerebrally damaged subjects divided their perceptual activity fairly evenly between Whole and Usual Detail responses. In this approach they resembled young children (4 to 6 in W%, 5 to 7 in D%) and tended to differ from the normal adults, who emphasized the Usual Details. The schizophrenics differed even more markedly from the normal adults in the same direction as the brain-damaged patients and were closer to the young children (4 to 5). In their neglect of Rare Details, the brain-damaged adults differed markedly from the normal adults and the schizophrenics.

2. *Quality of Location Choice.* In the three types of genetically low Whole responses characterized by fairly clearcut genetic trends (Amorphous, Confabulatory, and Minus Wholes—see Table III), the patients with cerebral damage were indistinguishable from the older children (6 to 10), whereas the schizophrenics resembled the younger age groups more closely.

TABLE III—Significance of Differences Between Groups in Per Cent of Amorphous, Confabulatory, and Minus W and D Responses*

Groups	Medians	CD	S
		P Values	
3	0 (20.)	.....	.....
4	0 (35.)	.....	.....
5	0 (32.)	.....	.....
6	0 (41.)	.....	.....
7	0 (10.)	.....**	.10
8	0 (9.)	.....**	.10
9	0 (4.)	.....**	.02
10	0 (5.)	.....**	.05
N	0 (0.)	.05 **	.001
CD	0 (20.)		.....
S	0 (37.)	.....	

Wa / W %

Groups	Medians	CD	S
		P Values	
3	0 (20.)	.....**	.....
4	0 (35.)	.10	.....
5	0 (18.)	.....**	.....
6	0 (32.)	.....	.....
7	3.4 (62.)	.001	.01
8	0 (18.)	.....**	.....
9	0 (14.)	.....**	.....**
10	0 (40.)	.05	.....
N	0 (7.)	.....**	.....**
CD	0 (10.)		.....**
S	0 (17.)	.....**	

Da / D %

Groups	Medians	CD	S
		P Values	
3	11.1 (65.)	.01	.10
4	9.2 (55.)	.02	.....
5	0 (45.)	.05	.....
6	0 (14.)	.....**	.02
7	0 (5.)	.....**	.01
8	0 (9.)	.....**	.01
9	0 (4.)	.....**	.01
10	0 (0.)	.....**	.001
N	0 (0)	.10 **	.001
CD	0 (17.)		.01
S	3.8 (50.)	.01	

DW / W %

Groups	Medians	CD	S
		P Values	
3	0 (5.)	.....**	.....**
4	0 (25.)	.....**	.....
5	0 (27.)	.....	.....
6	0 (32.)	.....	.....
7	0 (29.)	.....	.....
8	0 (23.)	.....**	.....
9	0 (23.)	.....**	.....
10	0 (10.)	.....**	.....**
N	0 (7.)	.....**	.....**
CD	0 (10.)		.....**
S	0 (13.)	.....**	

DdD / D %

Groups	Medians	CD	S
		P Values	
3	62.5	.001	.001
4	26.8	.10	.....
5	36.2	.01	.10
6	20.0	.....	.....
7	16.7	.....	.....
8	15.6	.....	.....
9	6.2	.....	.....
10	20.0	.....	.....
N	0	.10	.001
CD	4.6		.05
S	22.2	.05	

W— / W %

Groups	Medians	CD	S
		P Values	
3	58.6	.001	.001
4	50.0	.01	.01
5	35.4	.....	.05
6	31.0	.....	.....
7	22.0	.....	.....
8	25.0	.....	.....
9	22.6	.....	.....
10	25.4	.....	.....
N	16.2	.05	.....
CD	25.0		.....
S	20.0	.....	

D— / D %

* In tables where the majority of medians are zero, the percentage of cases using the particular score will be indicated in parentheses.

** A double asterisk accompanying a P value indicates that the P value is based on a Chi-square calculation in which more than one expected frequency was under five.

TABLE IV—Significance of Differences Between Groups in Per Cent of Vague Whole (Wv) and Usual Detail (Dv) Responses and of Mediocre Whole (Wm) and Usual Detail (Dm) Responses

Groups	Wv/W% Medians	CD P Values	S P Values
3	0 (20.)	.01	.001
4	11.1 (60.)	.....	.....
5	0 (45.)	.05	.....
6	8.7 (54.)	.10	.....
7	9.1 (52.)	.....	.....
8	0 (4.)	.001	.001
9	0 (32.)	.05	.05
10	0 (25.)	.01	.01
N	0 (43.)	.05	.05
CD	22.2 (67.)		.....
S	16.7 (73.)	.....	

Groups	Dv/D% Medians	CD P Values	S P Values
3	0	.....	.001
4	3.8	.....	.....
5	11.2	.02	.....
6	7.0	.10	.10
7	11.1	.01	.....
8	10.2	.01	.....
9	7.8	.05	.....
10	8.0	.05	.....
N	0	.....	.....
CD	0		.05
S	11.2	.05	

Groups	Wm/W% Medians	CD P Values	S P Values
3	13.4	.001	.02
4	12.7	.01	.02
5	21.2	.05	.....
6	26.2	.05	.....
7	33.3	.....	.....
8	38.1	.....	.....
9	40.0	.....	.....
10	33.3	.....	.....
N	50.0	.....	.001
CD	46.4		.10
S	31.6	.10	

Groups	Dm/D% Medians	CD P Values	S P Values
3	22.5	.01	.001
4	20.0	.001	.001
5	33.3	.05	.05
6	45.9	.....	.....
7	51.7	.....	.....
8	50.6	.....	.....
9	51.4	.....	.....
10	51.0	.....	.....
N	55.5	.05	.....
CD	47.8		.....
S	45.0	.....	

In this respect the subjects with cerebral pathology were intermediate between the normal adults and the schizophrenics, who gave significantly more low Wholes than the normal adults. The differences among the adult groups were less clear with regard to the genetically low types of Usual Details, except that the cerebrally damaged patients tended to give more D— responses than the normal adults. Neither pathological group could be distinguished reliably from the genetic scale as a whole in the rare Amorphous and Confabulatory D responses, but resembled the older children in the Minus D responses.

The more intermediate Vague responses (Table IV), though defined as genetically low, showed a more complex character than the other developmentally early responses. The cerebrally damaged group resembled the schizophrenic group in that it contained a greater percentage of subjects giving Vague Whole responses than any of the child groups and the normal adults. The emphasis on Vague Wholes was somewhat more marked in the subjects with cerebral damage than among the schizophrenics. With respect to the Vague Usual Detail responses, however, the findings were reversed, in that the brain-damaged group was close to normal in giving fewer such per-

TABLE V—Significance of Differences Between Groups in Per Cent of Well-Integrated, Genetically High W and D Scores*

$\frac{W++}{W}\%$

Groups	Medians	CD	S
		P Values	
3	0 (0)	.....**	.....**
4	0 (0)	.....**	.....**
5	0 (9.)	.....**	.....**
6	0 (4.)	.....**	.....**
7	0 (10.)	.....**	.....**
8	0 (9.)	.....**	.....**
9	0 (32.)	.05	.....
10	0 (25.)	.....**	.....**
N	0 (23.)	.10	.....
CD	0 (7.)		.....**
S	0 (10.)	.....**	

$\frac{D++}{D}\%$

Groups	Medians	CD	S
		P Values	
3	0 (0)	.....**	.....**
4	0 (0)	.....**	.....**
5	0 (4.)	.....**	.....**
6	0 (5.)	.....**	.....**
7	0 (5.)	.....**	.....**
8	0 (14.)	.....**	.....**
9	0 (27.)	.....**	.01 **
10	0 (25.)	.....**	.02 **
N	0 (10.)	.....**	.....**
CD	0 (7.)		.....**
S	0 (0)	.....**	

$\frac{W+}{W}\%$

Groups	Medians	CD	S
		P Values	
3	0 (45.)	.....	.....
4	5.6 (50.)	.....	.....
5	6.0 (54.)	.....	.....
6	0 (32.)	.....	.....
7	0 (29.)	.....	.....
8	0 (32.)	.....	.....
9	0 (18.)	.....	.....
10	4.2 (50.)	.....	.....
N	12.5 (60.)	.....	.....
CD	0 (43.)	.....	.....
S	0 (43.)	.....	

$\frac{D+}{D}\%$

Groups	Medians	CD	S
		P Values	
3	0	.01	.01
4	0	.001	.001
5	8.7	.05	.....
6	3.0	.10	.10
7	4.0	.01	.02
8	6.9	.10	.....
9	8.2	.05	.....
10	11.4	.....	.....
N	18.2	.....	.....
CD	15.5		.....
S	10.6	.....	

$\frac{W++\ \&\ W+}{W}\%$

Groups	Medians	CD	S
		P Values	
3	0 (45.)	.....	.....
4	5.6 (50.)	.....	.....
5	6.3 (54.)	.....	.....
6	0 (32.)	.....	.....
7	0 (33.)	.....	.....
8	0 (32.)	.....	.....
9	0 (36.)	.....	.....
10	16.7 (55.)	.....	.....
N	25.0 (70.)	.10	.001
CD	4.6 (50.)		.....
S	0 (47.)	.....	

$\frac{D++\ \&\ D+}{D}\%$

Groups	Medians	CD	S
		P Values	
3	0	.01	.01
4	0	.001	.001
5	8.7	.05	.....
6	3.2	.10	.10
7	4.0	.01	.02
8	6.9	.10	.....
9	9.7	.10	.....
10	12.5	.....	.....
N	18.2	.....	.....
CD	16.0		.....
S	10.6	.....	

* Where the majority of groups compared with respect to a particular score have median values of zero, the percentage of subjects giving the responses under consideration is indicated parenthetically for each group.

** A double asterisk accompanying a P value indicates that the P value is based on a chi-square calculation in which more than one expected frequency was under five.

TABLE VI—Significance of Differences Between Groups in Per Cent of Genetically High Whole Responses, Genetically Low Whole Responses, Genetically High Usual Detail Responses, and Genetically Low Usual Detail Responses.

High W / W %

Groups	Medians	P Values CD	P Values S
3	22.2	.001	.001
4	18.4	.001	.10
5	31.0	.02	.....
6	29.2	.....	.....
7	50.0	.....	.....
8	61.9	.....	.05
9	56.6	.....	.01
10	63.4	.....	.05
N	83.3	.001	.001
CD	58.6		.05
S	37.5	.05	

Low W / W %

Groups	Medians	P Values CD	P Values S
3	77.8	.001	.001
4	81.6	.001	.10
5	69.0	.02	.....
6	61.2	.....	.....
7	50.0	.....	.....
8	33.3	.....	.01
9	38.1	.....	.01
10	22.5	.....	.01
N	12.5	.001	.001
CD	41.4		.05
S	62.5	.05	

High D / D %

Groups	Medians	P Values CD	P Values S
3	29.2	.001	.001
4	25.0	.001	.001
5	37.5	.001	.10
6	50.0	.10	.....
7	60.0	.....	.....
8	58.2	.....	.....
9	63.0	.....	.....
10	62.2	.....	.....
N	76.0	.05	.001
CD	66.3		.....
S	57.5	.....	

Low D / D %

Groups	Medians	P Values CD	P Values S
3	66.7	.001	.01
4	75.0	.001	.001
5	62.5	.001	.05
6	50.0	.10	.....
7	40.0	.....	.....
8	41.8	.....	.....
9	37.0	.....	.....
10	37.8	.....	.....
N	24.0	.05	.01
CD	33.7		.....
S	41.0	.....	

cepts than the schizophrenics.

Coming now to the genetically mature responses, the subjects with cortical damage resembled the normal adults in offering considerably more Mediocre Whole responses (Table IV) than the schizophrenics. In this respect they were similar to the oldest children (7 to 10), whereas the schizophrenics were similar to some younger children as well (5 to 10). In Mediocre Usual Detail percepts, both pathological groups could be said to be less productive than the normal adults, and were indistinguishable from the older children (6 to 10).

Both pathological groups tended to give fewer of the well-organized Whole responses (Plus and Plus Plus combined—see Table V) than did the normal adults, the scarcity being more marked in the schizophrenic group. In the well-integrated Usual Detail responses, all the adult groups were similar. Along the genetic scale, neither pathological group was separable from any child group in the production of well-integrated Wholes, but the patients with cerebral damage at least tended to give more well-organized D responses than any of the child groups except the 10-year-olds, whereas the psychotics were also indistinguishable from

somewhat younger children.

In short, comparisons involving the various types of developmentally immature and mature Whole and Part responses showed the cerebrally damaged patients to be intermediate between the normal adults and the schizophrenics and therefore more like the older children. Similarly, in gross comparisons involving combined genetically low and combined genetically high Location Choices (Table VI), the subjects with cerebral pathology fell between the normal adults and the schizophrenics in their reduced proportion of the genetically high W and D. As has been consistently noted in the preceding studies, the differences were more marked with respect to the Whole responses than in the discrete Usual Detail percepts. All three groups, particularly the normal adults, showed more of the genetically advanced types of D percepts than of the immature types. The normal adults displayed distinct preference for genetically high Whole Responses as a group; the schizophrenics showed an equally marked preference for genetically early types of Wholes; and the subjects with brain damage were intermediate in tending to show a predominance of the mature Whole responses. Along the genetic scale, the cerebrally damaged subjects clearly resembled the older children (6 to 10 in W, 7 to 10 in D) in this overall aspect of their perceptual functioning, while the schizophrenics also were similar to somewhat younger children (5 to 7 in W, 6 to 10 in D).

3. *Fusion responses (Table VII).* The brain-damaged subjects, like the normal adults, gave very few Fabulized Combinations and Contaminations in comparison with the schizophrenics. A smaller percentage of subjects with cerebral pathology gave such responses than was true of any child group except the 10-year-olds.

TABLE VII—Significance of Differences Between Groups in Per Cent of Fusion Responses (Fabulized Combinations and Contaminations)*

Groups	Medians	CD	S
		P Values	
3	0 (15.)	.....**	.....
4	0 (35.)	.....	.....
5	0 (36.)	.10	.....
6	0 (18.)	.....**	.....
7	0 (33.)	.....	.....
8	0 (27.)	.....	.....
9	0 (18.)	.....**	.....
10	0 (10.)	.....**	.....
N	0 (3.)	.....**	.02
CD	0 (13.)		.....
S	0 (30.)	.....	

* In the absence of any median values other than zero, percentage of subjects giving the kind of responses under consideration is indicated parenthetically for each group.

** A double asterisk accompanying a P value indicates that the P value is based on a chi-square calculation in which more than one expected frequency was under five.

TABLE VIII—Significance of Differences Between Groups in Number of Content Categories

Group	Medians	CD	S
		P Values	
3	5.0	.....	.001
4	5.8	.....	.01
5	7.8	.....	.....
6	8.8	.05	.....
7	14.0	.001	.01
8	11.0	.001	.05
9	10.8	.01	.....
10	11.5	.001	.05
N	8.5	.01	.....
CD	7.0		.01
S	9.0	.01	

4. *The variety and dispersal of content (Tables VIII to XI).* Like the youngest children (3 to 5), the cerebrally damaged patients displayed strikingly less variety of content than the normal adults and the schizophrenics (Table VIII).

TABLE IX—Significance of Differences Between Groups in the Perseveration Score and the Range-of-Perseveration Score

Groups	Perseveration Score	CD	S	Groups	Range-of-Perseveration Score	CD	S
	Medians	P Values			Medians	P Values	
3	35.4	.10	.05	3	9.8	.001	.001
4	24.7	.....	.....	4	9.8	.10	.001
5	20.6	.....	.....	5	6.7	.....	.10
6	21.2	.....	.....	6	4.4	.....	.....
7	18.3	.....	.....	7	2.4	.01	.02
8	22.0	.....	.....	8	3.0	.01	.05
9	17.0	.10	.05	9	4.0	.01	.....
10	13.8	.10	.01	10	2.9	.02	.10
N	14.9	.01	.01	N	4.3	.....	.....
CD	22.0		.....	CD	6.5		.....
S	20.6	.....		S	4.4	.....	

TABLE X—Significance of Differences Between and Within Groups in Per Cent of the Most Common Content (Animal) Appearing in Mediocre Whole (Wm) and in Mediocre Usual Detail (Dm) Responses.

Groups	A+ Ad + Aobj. in Wm / Wm %	CD	S	Groups	A+ Ad+ Aobj. in Dm / Dm %	CD	S
	Medians	P Values			Medians	P Values	
N	80.0	.01	.....	N	62.5	.....	.....
CD	100.0		.10	CD	68.8		.01
S	100.0	.10		S	50.0	.01	

Groups	Medians A+Ad+Aobj. in Wm / Wm %	P Values vs.	Medians A+Ad+Aobj. in Dm / Dm %
N	80.0	.10	62.5
CD	100.0	.001	68.8
S	100.0	.001	50.0

Both pathological groups perseverated more than the normal adults (Table IX), and were most like children from 4 to 8 years old in this characteristic. Nevertheless, they were not clearly distinguishable from the normal adults in the range of content perseverated.

The cerebrally damaged patients surpassed the normal adult tendency to resort to common content. They concentrated almost exclusively upon the most common content (animal categories) in giving their Mediocre Whole responses (Table X), wherein they have already been shown to be quite close to normal functioning, whereas the normal adults showed significantly greater and the schizophrenics somewhat more variety of content in their Wm percepts. On the other hand, the subjects with cerebral pathology gave less animal content in their Dm responses than in Wm, and in this were indistinguishable from the normal adults, while still demonstrating greater concentration on common content than the schizophrenics. In ascribing a significantly greater proportion of specifically Popular contents to Mediocre Whole than to the part percepts (Table XI), the cerebrally

TABLE XI—Significance of Differences Between Groups in Number of Popular Contents (P) and Within Groups in Per cent of Popular Contents in Mediocre Whole Responses and Mediocre Usual Detail Responses

Groups	Number of P Medians	P Values CD	P Values S
N	5	.02	.02
CD	4		.....
S	4	.....	

Groups	Medians P in Wm	P Values vs.	Medians P in Dm
	Wm%		Dm%
N	50.0	.....	38.0
CD	58.4	.001	25.0
S	55.0	.001	25.0

TABLE XII—Significance of Differences in Per Cent of Sole Use of Form Determinant in Responses (Form Score)

Groups	Medians	P Values CD	P Values S
3	89.6	.001	.001
4	74.2	.10	.05
5	66.1	.....	.....
6	72.6	.05	.001
7	69.4	.10	.01
8	68.6	.....	.01
9	65.8	.....	.01
10	68.0	.10	.001
N	48.0	.01	.....
CD	60.8		.....
S	52.0	.....	

damaged patients were similar to the schizophrenics and dissimilar to the normal adults, who tended to distribute Popular contents more evenly among whole and part areas.

5. *Form score (Table XII).* Finally, in accounting for their responses, the cerebrally damaged subjects limited themselves mainly to the sheer form aspects of the areas selected, and tended to neglect other aspects of the stimuli more than did the normal adults and somewhat more than the psychotics. The brain-damaged subjects still had a lower median F% than any of the children.

DISCUSSION AND CONCLUSIONS

The linkage to genetic theory provided in the basic scoring categories used in this study have already been indicated in the preceding papers by Friedman (1950) and Siegel (1951). The guiding principle has been one of structural differentiation and hierarchic integration. Genetically early perception has been shown to be global, diffuse, labile, syncretic, and rigid, giving way to increasing differentiation, flexibility, and organization.

With these linkages in mind, the findings indicate the following perceptual characteristics of the pathological groups under consideration: Pathology, whether chiefly the result of destruction of cerebral tissue or of deep emotional disturbance, as in schizophrenia, results in a relative accentuation of genetically immature perceptual structurization, to the detriment of the genetically more mature aspects. This so-called regression, however, takes somewhat different forms in the two kinds of disturbance.

The deviation from the normal standard in cerebral pathology may be said to represent an over-stabilization and automatization of what in the normal adult are the economical, habitual, yet not inflexible perceptual reactions to the world about him. The evidence for this is contained partly in the observation that the cerebrally damaged subjects are barely distinguishable from the normal adults in the task of analyzing and then organizing a Whole blot, and not clearly distinguishable from them in the organization of parts. When one considers that an important feature of the adjustive pattern in the normal course of development is the analysis of situations into

coherent units which makes possible flexible behavior on a realistic basis, then one can see how such analytical-integrative modes of reaction become habitual, economical functions. Both pathological groups, especially the group with cerebral pathology, show evidence of retaining such entrenched "automatisms" in their perceptual structurization. Evidence for this "automatism" emphasis in the cerebrally damaged group also derives from the fact that they give as many Mediocre Whole percepts as the normal adults, that the relatively great number of Vague Wholes represents a massive attempt to cling to the level of ordinary structuring of the world about them, and that there is a heavy concentration on the most common content. Whereas the level of differentiation and organization of the cerebrally damaged adult resembles that of older children (6 to 10) in most respects, its maintenance is achieved at the expense of a decided inflexibility and impoverishment of outlook (as seen in high perseveration, high F%, and barrenness of content) formally similar to that of young children (3 to 5).

On the other hand, the deviant trend in the schizophrenic group may be said to represent a distinct, though partial, failure of an attempt at stabilization, and hence a greater susceptibility to global, diffuse, labile, and syncretic modes of perception. The relatively lower level of organization shown in the perception of the schizophrenic adult is thus formally closer to the perceptual activity of young children (3 to 6); yet it has to be viewed in the context of a still-retained flexibility in the use of environmental stimuli which is more like that of the older children and normal adults.

The results of this study, then, point to the conclusion that the perceptual structuring of cerebrally damaged adults displays certain qualitative aspects which, while most like that of older children, are in some important respects (such as rigidity and impoverishment of outlook) analogous to characteristics seen in the youngest children and in other respects like the stabilizing and economical features in normal adults. Hence they cannot be adequately described in terms of strict identity with any particular developmental phase, but rather as reflecting a combination of genetically early and genetically late characteristics. Similarly, the perceptual functioning of chronic schizophrenics contains a combination of low and high qualities; yet, on the whole, it is formally closer to that of fairly young children.

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CASE STUDY

Psychosurgery In A Set of Schizophrenic Identical Twins— A Psychological Study [1,2]

GEORGE CALDEN, PH.D.
Veterans Administration Hospital, Madison, Wisconsin

Identical twins have long been regarded as ideal subjects for experimental research. This is true because Nature has largely relieved the investigator of the knotty problem of experimental control. By using identical twins, one can achieve effective control not only in the matching of identical physical endowment, but also in the relative similarity of environmental background. In the past, this method of co-twin control has produced fruitful results in numerous studies; particularly those investigating the nature of intelligence, the formation of personality and the genetic basis of schizophrenia. The study described below is, to the author's knowledge, the first attempt to extend this experimental method to an evaluation of psychosurgery.

The object of this paper is to describe the postoperative changes in a lobotomized schizophrenic patient. His behavior is to be compared with that of his nonoperated schizophrenic identical twin who served as a control subject. The plan of the study was to administer a series of psychological tests to each twin one week prior to the lobotomy and each month thereafter for a period of nine months. It was thus possible to obtain a detailed longitudinal record of both patients which would reflect any behavioral changes from month to month. The effects of the psychosurgery were to be evaluated in two ways: (a) by a comparison of the lobotomized patient's test records with those of his twin control, and (b) by a comparison of the lobotomized patient's pre- and postoperative test performance. The psychological measures used were three projective techniques — the Rorschach, the Bender-Gestalt and the Draw-a-Person tests.

BACKGROUND DATA

The twins will be referred to as O (operated twin) and NO (nonoperated twin). Both are white, male and unmarried. At the time of the operation they were 35 years of age. Very little is known of the twins' grandparents except that they were of English-German, Protestant-Adventist stock and that they died of old age. The twins' parents reportedly had a happy married life. There were five children in the family, three of whom (two

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[1] From the Veterans Administration Hospital at Madison, Wisconsin.

[2] This study was undertaken at the Veterans Administration Hospital, Fort Custer, Michigan, one of the hospitals participating in the Veterans Administration lobotomy research project. This paper is the result of a special intensive study of two patients at the hospital. The author wishes to express his appreciation for the cooperation of Dr. A. L. Carp, former Chief Psychologist (now at Lackland AFB, San Antonio, Texas) and the staff of the VA Hospital at Ft. Custer, Michigan, Dr. E. E. Baughman, University of Wisconsin, and Dr. R. Sanders, Veterans Administration Hospital, Perry Point, Maryland, are to be thanked for critically reading the paper and making helpful suggestions. The author, however, assumes sole responsibility for the interpretation of the material presented.

brothers and one sister) were born before the twins. The twins' siblings appear well adjusted and have families of their own. The father died in 1930 of a stomach cancer. Two years later, when the twins were 17, the mother remarried. The mother reported that her second marriage was an unfortunate one. She stated that the twins' stepfather was a "drunk" who frequently assaulted her. There was marked friction between the twins and their new father. The twins invariably sided with their mother in all family disputes. The mother and stepfather recently died. The only evidence of mental illness in the family background appears on the mother's side. Her brother had been confined to a mental institution for seven years.

Most of the early history of the twins was supplied by their mother in an interview with a social worker. According to the mother, O was born five minutes after NO. She reported no difficulties at birth: "It was the easiest time I ever had." She painted a happy picture of the twins' childhood. "They were healthy, happy babies," who were extremely fond of each other, played together constantly and never fought. There were no problems in toilet training. At school they were well behaved and were well liked by their teachers and classmates. They frequently sang together and starred in school entertainments. Their grades, however, were below average. At the age of 15, they left school (eighth grade) and went to work on nearby dairy farms to help support their widowed mother. Although they worked on different farms they always sought each other's company during leisure time. Together, they hunted, fished, played ball and pitched horseshoes. They enjoyed dancing and attended parties, but neither one had a steady girl friend. The mother stated that O once expressed a desire to keep company with a girl, but was afraid that girls were too fickle and couldn't be trusted. NO was described as having a stronger will than his brother and was a born leader and ruler. However, NO never ruled O, as O had a mind of his own. According to their mother neither one "smoked, drank or chewed" at this time. Summing up she categorized them as "just good Christian boys."

The military psychiatric reports, however, revealed information not brought out in the social worker's interview. O admitted to the army psychiatrist that he had committed numerous acts of sexual intercourse with farm animals. O also mentioned at least one incident of homosexuality in which he indulged in fellatio. NO was reported as having been generally shy and withdrawn while in the army.

NO was inducted into the army in April 1942, eight months before O. They were assigned to different infantry units. This was the first time in their lives that they were unable to be near each other. Both twins were reported as having been quite upset about this turn of events. It is quite possible that this separation may have been a crucial precipitating factor in the development of their mental illness.

The onset of their schizophrenic behavior occurred in the army in the winter of 1944. Although in different geographical areas, they both began exhibiting psychotic symptoms within a few months of each other. NO was found wandering aimlessly about the deck of a troop ship the day after it left this country. He seemed confused, poorly oriented and expressed worry about conditions at home. He was returned to the zone of interior and sent to a Veterans Administration

hospital. He gained a partial remission in 1945 after a course of EST and was sent home on a 90 day trial visit. However, he quickly regressed, ceased eating and sleeping, started grieving about his brother O and began assuming an emotionally flattened, catatonic - like attitude. Along with this he developed a number of delusions of a religious-sexual nature. He maintained, for example, that "the devil controls me through the Christ child in the womb through a river." He became obsessed with the idea that the devil was in him. "He keeps punching me all over and calling me bad names." After his return to the hospital his behavior alternated between a prolonged stuporous apathy and assaultive outbursts in which he attacked his brother and fought attendants and fellow patients.

O also became markedly withdrawn while on overseas duty. He was subsequently sent to the same Veterans Administration hospital as NO. Unlike his brother, a course of EST produced negligible results. O remained constantly incoherent in his thinking and disoriented in all spheres. His disorientation took the form of auditory and olfactory hallucinations and delusions of a religious - homosexual nature. At times he insisted that "I am filth in the well." He also maintained that he was in constant touch with God and "my address is in heaven." He was generally untidy, soiled his bed and had to be under constant custodial care. Predominantly withdrawn, apathetic and generally indifferent to his surroundings, at times he became hostile and assaultive, attacking NO and other patients. Both twins had to be placed frequently in wet packs.

Upon the decision of the Psychiatric Board, O underwent a bilateral, prefrontal lobotomy operation in the late summer of 1950.[3]

Test Results - Nonoperated Twin

The battery of three projective techniques, the Rorschach, Bender-Gestalt and Draw-a-Person tests, was administered to each subject one week before the lobotomy and each month thereafter for a period of nine months. During this time a careful record was made of the twins' behavior. The author held semi-weekly, one hour interviews with both twins. Following each of these "group" meetings, the twins were seen individually for half hour sessions.

The test performance of NO will be considered first. His overall test results show no significant change during the period of nine months. Also, no noticeable differences in ward behavior were observed in this period.

Rorschach

One week before his brother's operation, NO's Rorschach test responses consisted entirely of such bizarre associations as "skin off a girl's family tree," "loose bubbles," "cakes of paper," "cotton seeds" and "a spirit pad with droppings on it." These dissociated percepts indicate the severity of his disturbance. Subsequent administrations of the Rorschach during the period of nine months yielded similar bizarre responses. Typical percepts were "an aster on the tomb of Grant," "dusting powder with suction cups" and "a fruit tree with perfume. I can smell it."

[3] The Board also decided to have NO undergo psychosurgery after sufficient time had elapsed to observe the effects of the operation upon O. NO has since been operated upon. Recent reports from the Ft. Custer V.A. Hospital indicate that NO's behavior has not changed significantly after his lobotomy.

Draw-a-Person

When asked to draw a person, NO began tracing vague forms in the air. When his hands were placed near the paper he drew the nebulous objects shown in Fig. 1. The object on the right was drawn nine months after the one on the left. These drawings had to be darkened in order to be seen clearly. The original drawings were practically invisible. The thin, threadlike quality of the lines and the empty formlessness of the figures seem to correspond to his stuporous dream-like condition expressed by the "loose bubbles" and "cotton seeds" seen on the Rorschach plates. The drawing on the right may reflect symbolically the phallic preoccupations expressed openly in NO's speech and actions. No significant behavioral changes are revealed by this test during the period of nine months.

Bender-Gestalt

Two sets of NO's Bender-Gestalt drawings are shown in Fig. 2. They were drawn nine months apart and show similar schizophrenic manifestations. Most of the Bender-Gestalt designs in each drawing are practically unrecognizable. The extreme confusion in sequence of designs, the bizarre distortions in shape and size, the recurrent rotations and fragmentations, all testify to NO's deep seated, regressed, psychotic state. The additional Bender-Gestalt and Draw-a-Person productions for each month are not presented here. They do not differ significantly from the ones shown in Fig. 1 and Fig. 2. In general, the three projective tests illustrate the absence of significant behavioral change in NO.

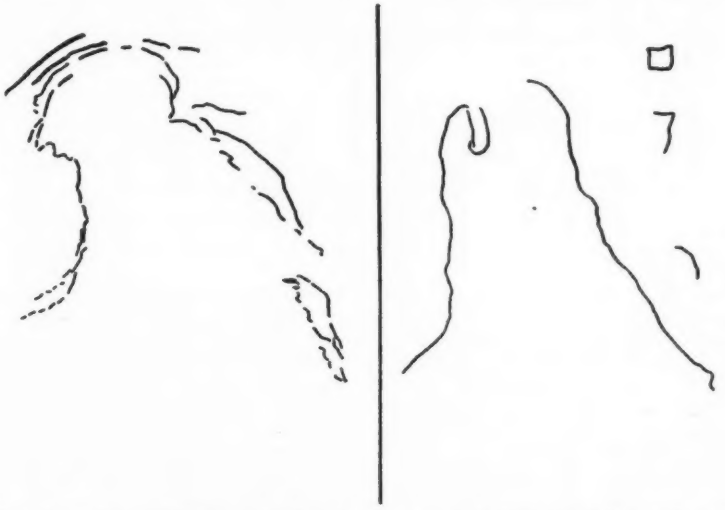

FIG. 1 — Draw-a-Person productions one week before (left) and nine months after (right) brother's lobotomy. (Non-operated twin).

TEST RESULTS — OPERATED TWIN

O's distractability, one week be-

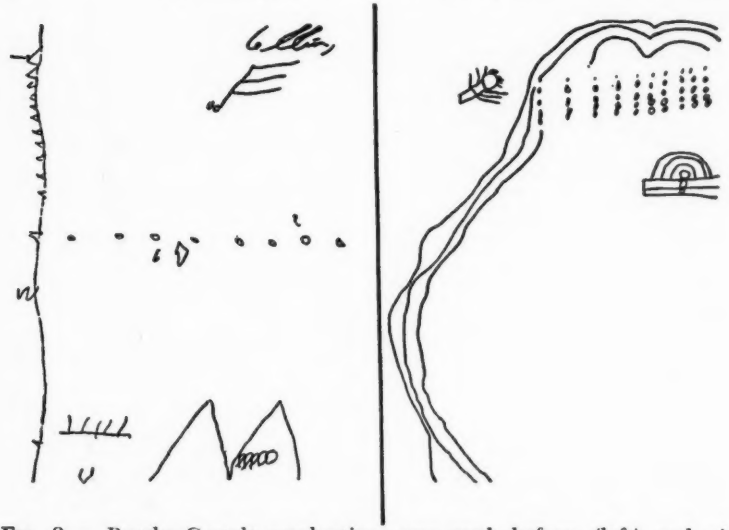

FIG. 2 — Bender-Gestalt productions one week before (left) and nine months after (right) brother's lobotomy. (Non-operated twin)

fore his lobotomy, was so great that it was impossible to administer either the Bender-Gestalt or Draw-a-Person test. O apparently could not comprehend the nature of the test instructions, despite the examiner's repeated explanations. All O could produce was a few meaningless scribbles that seemed totally unrelated either to the stimulus Bender-Gestalt designs or to a human figure. However, he was able to respond to several of the Rorschach inkblots. At this time his Rorschach responses were as dissociated as those of his brother, NO. Typical responses include "Elijah's monkeys," "a Republican ticket in the courtyard," "solid carbolic acid," "a raw forefinger," and "I can't touch that ovary."

Postoperative behavior

After surgery many changes were observed in O's behavior. One month after the operation, his facial expression indicated either blankness or a dazed bewilderment. He would sit quietly with his head down, fingers interlaced, observing others without comment. Most questions were answered with a simple, apathetic, "I don't know." There was, however, a marked lessening of incoherent and bizarre thinking. He still made use of neologisms, such as the word "pedester," which he defined as an "ordinary sort of person like my brother." (He probably means "pedestrian").

About two months after the operation O even dropped the neologisms. The major postoperative behavioral changes were in evidence by the fourth month. By that time all signs of autistic thinking and schizophrenic speech were gone. There has been no evidence of dissociated, incoherent thinking since this fourth month. His contact with reality was good, although his thinking appeared to be largely constricted, concretistic and limit-

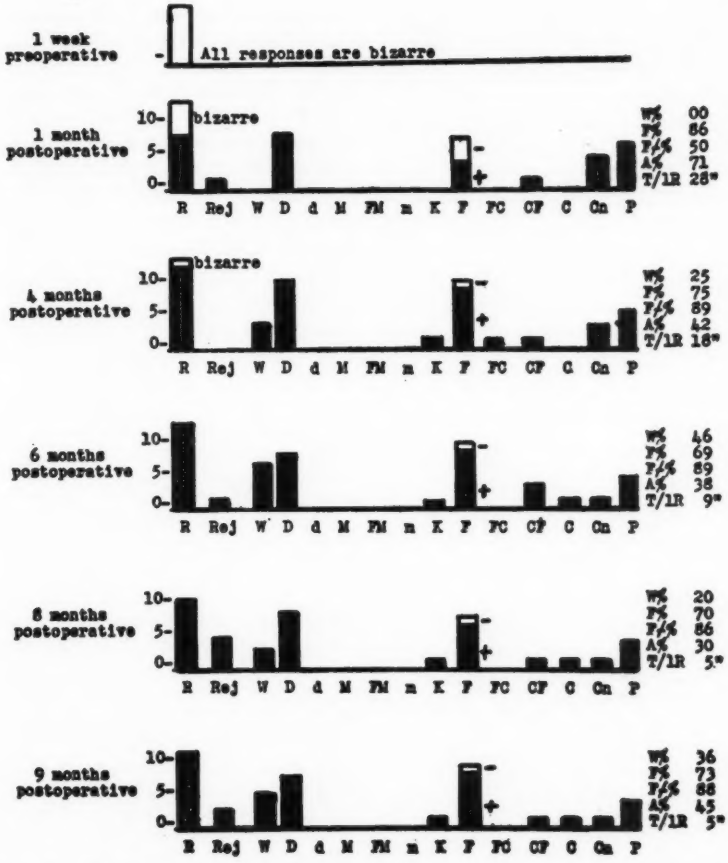

FIG. 3 — Sequence of Rorschach psychograms before and after lobotomy. (Operated twin).

ed in range of content. After the fourth month he developed a greater interest in his surroundings. He seemed to enjoy talking to others. He began playing checkers with fellow patients. On several occasions he offered cigarettes to his brother, NO. In contrast to his preoperative inability to take care of his bodily needs, he began to shave, clothe himself, and make his bed. At the end of the nine months he was able to participate in the hospital's rehabilitation program. His excitability and uncontrolled assaultive behavior disappeared entirely. His preoperative hostility was replaced by a quiet, but persistent negativism. Although O developed a small degree of spontaneity, he still displayed a general lack of initiative and a negligible concern for either the past or future.

O's psychological test responses mirror a number of these postoperative changes.

Rorschach

An overall longitudinal presentation of O's Rorschach test results is shown in Fig. 3.

A striking aspect of his Rorschach psychogram one month after the operation is that he had gained sufficient contact with reality to offer a recognizable set of percepts. The pattern of responses in this record resembles that of a simple schizophrenic. The low productivity, (R), the constricted experience balance, (M:C), the high percentage of animal percepts, (A%), the absence of small details, (Dd), all reflect social withdrawal, low emotional reactivity, loss of interest and intellectual poverty. The color naming, (Cn), probably reflects the expressive inadequacies induced by the recent cerebral injury.

A few significant modifications in his Rorschach test performance are seen at four months and after. These changes correspond to his altered behavior observed on the ward at this time. The bizarre associations have completely disappeared. The appearance of whole (W), responses suggest an increased capacity for integration and simple conceptual ability. An increased interest in the social environment is shown by the human, (H), percepts. The increase in color (FC, CF), reflects a greater capacity for emotional responsiveness. However, this responsiveness, as revealed by the pure color, (C), "blood" percepts is of a decidedly immature nature.

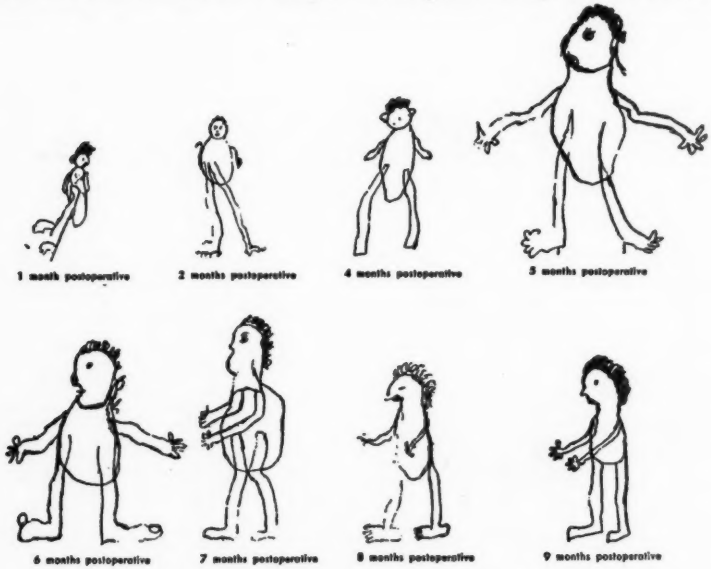

FIG. 4 — Sequence of Draw-a-Person productions after lobotomy. (Operated twin)

Draw-a-Person

The postoperative personality development is graphically illustrated in the monthly sequence of Draw-a-Person figures.

A month after the lobotomy a recognizable human figure, shown in the upper left hand corner of Fig. 4, is produced. This figure drawing represents gross abnormality. There is a general disorganization about the placement of body parts. The figure is not on terra firma. The smallness of size, the shaky lines, the head facing one way and the body the other—all testify to weakness of ego-control, to a confusion in self percept and to a disjunction of thought and emotion. However, when viewed in the light of his later productions this drawing seems to represent an early attempt on O's part to organize his senses and relate to his environment.

In the drawings that follow one can observe the lessening of bodily distortion, the improved placement of the legs, the development of arms and the growing differentiation of body parts. This points to an increased capacity to relate to others, greater stability and a development from confusion to differential behavior. The oral aggression portrayed in the figure drawn in the fifth postoperative month (Fig. 4), finds its counterpart at this time in the pure color, (C), blood responses on the Rorschach test and the use of jagged lines on the Bender-Gestalt test.

In the drawing produced in the seventh postoperative month, one sees the first signs of movement in the bent arms and legs. This movement has a mechanical toy, robot-like appearance, emphasizing the rigidity of his mental control and the relative lack of spontaneity. The last two drawings (eighth and ninth postoperative months) show a decrease in transparencies, a clearer delineation of parts and some relaxation of rigidity. Despite the emptiness of the drawings, these last figures contrast markedly with his earlier ones as well as with his brother's confused productions.

An estimate of O's mental age based on the Goodenough Intelligence Scale reveals an increase during the nine months from 5.9 to 10.6 years.

Bender-Gestalt

The psychological significance of the Bender-Gestalt drawings tends to parallel that of the human figure drawings in many ways.

The first reproductions, as illustrated in the upper left hand corner of Fig. 5, reflect the initial feeble attempts at contacting reality one month after the operation. Although the distorted designs at this time are indicative of chaotic thinking, most of them, with the exception of the overlapping hexagons of Design 7, are recognizable. However, one can readily observe the general strengthening of ego-boundaries if one focuses attention on the changes in Design 7, the growing orderliness of the sequence of drawings and the general decline in distortion or rotation of designs from month to month. The progressive decrease in the amount of space between the designs and the bunching of the drawings toward the top of the page in the later months suggest that his ego-boundaries are being tightened rather than expanded. O's inability to produce elaborations to his Bender-Gestalt figures highlights the stimulus bound, task-orientation already shown on the other projective tests. The recurrent appearance of rotations reminds one of the underlying schizophrenia.

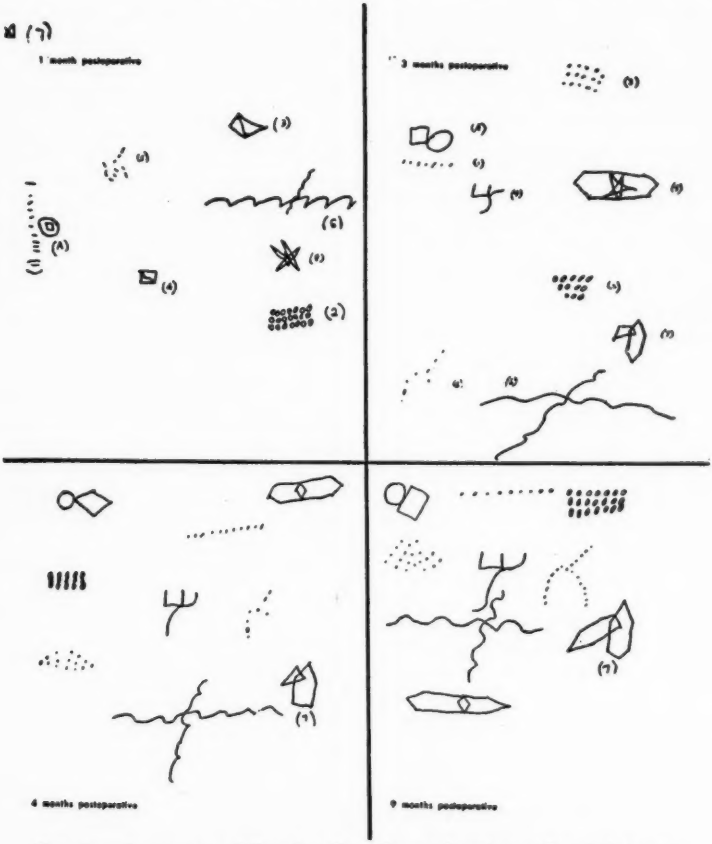

FIG. 5 — Sequence of Bender-Gestalt productions after lobotomy. (Operated twin)

In general the results of the three projective tests tend to confirm or supplement each other. Each test indicates the lack of behavioral change in the nonoperated control twin. At the same time the major postoperative changes in the lobotomized twin are reflected in each set of test protocols. Any difference among the three sets of test results is primarily one of emphasis. The Rorschach test uncovers the overall blunting of the operated twin's personality, the dulling of imagination, as well as an increased extraversion in later months. The Draw-a-Person test is more sensitive to the subtle developmental changes from month to month, particularly in the area of growing self-awareness and differentiation of behavior. The Bender-Gestalt test results emphasize the increase in ego control as well as the persistence of schizophrenic tendencies beneath the controlled surface.

SUMMARY

The presence of a pair of psychotic identical twin patients at a VA hospital offered a unique opportunity for psychological research. One of the twins underwent a bilateral, prefrontal lobotomy. The other twin was not operated upon. Because of their marked constitutional and behavioral similarities the twins were regarded as an ideal subject and control for the investigation of personality changes attendant upon psychosurgery.

A battery of three projective techniques—the Rorschach, Draw-a-Person and Bender-Gestalt tests was given repeatedly to each twin. The tests were administered one week before the prefrontal lobotomy of one of the twins and each month thereafter for a period of nine months. Thus a longitudinal record of both patients was obtained.

The postoperative test protocols of the lobotomized patient were compared with those of his preoperative performance. In addition, his test records were compared with those of his nonoperated twin control. The test productions of the lobotomized twin clearly reveal the gradual postoperative changes from a severely disoriented, stuporous and occasionally violent individual into a harmless, relatively cooperative, and reality oriented, ward patient. The tests also disclose a number of characteristics seen in many lobotomy patients, i.e., a lack of interest, initiative or emotional responsiveness. An analysis of the longitudinal test records of the non-operated twin shows no significant change.

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BRIEF REPORTS

Hostility as a Factor in the Clinician's Personality as it Affects His Interpretation of Projective Drawings (H-T-P).[1]

EMANUEL F. HAMMER, PH.D. AND ZYGMUND A. PIOTROWSKI, PH.D.
Research Project, Psychiatric Institute, New York

Previous studies in projective techniques have been aimed at obtaining insight into the manner in which personality dynamics, needs, conflicts and phantasies of a subject are revealed by his responses to a projective device. The study of the role of the clinician and the significance of his personality factors in the interpretation of projective techniques have awaited study until the establishment of working tenets in regard to the interaction of the personality of the subject with the projective material. If psychodiagnostic tools are to be sharpened and made more valid, investigation must now be made of the correlation between the interpreter's own needs, conflicts and phantasies and the interpretations he makes from a patient's projective protocols.

A study by Bruner and Goodman (1947) highlighting the connection between needs and perception deserves mention in this regard. It was found that poor subjects overestimated the size of coins more than did rich subjects. This was considered to be a reflection of the greater financial need of the poor children, and was taken to substantiate the hypothesis that needs affect perception and judgment.

The present study was set up to investigate the question of whether or not clinicians' needs, as with the needs of the subjects in the study by Bruner and Goodman above, influence and distort their apperception or 'reading' of a set of projective protocols, namely a series of drawings of House, Tree and Person (HTP).

There has already been some experimentation done on the effect of the clinicians' personality upon his rating of the overt behavior of subjects by Frenkel-Brunswik (1951). She states that "drive ratings may be influenced by . . . the intensity of the drive in question in the personality of the rater" (p.390). She found that raters showed a stronger tendency to project when rating children of their sex than when rating children of the opposite sex. Hence, she concludes that "we must acknowledge that there are various subjective factors that seem to influence the perception of others even in clinically trained observers (p.393).

Does the same hold true for clinically trained projective testers? This question is the aim of the present study. The particular trait (the expression of which represents a need) chosen for study in this experiment was that which is roughly referred to as "hostility" or "aggression." The decision to focus upon this personality area grew out of the writers' experiences which have led them to feel that the two areas in which clinicians tend to differ most in their interpretations are those of hostility and sexuality. The former was investigated in the present study; and the latter is to be investigated in a subsequent study.

[1] Grateful acknowledgment is made to Mrs. Susan Deri for her interpretation and ranking of the Szondi Profiles and to John N. Buck for his fruitful suggestions and criticisms.

PROCEDURE

The freehand drawings of House, Tree and Person had been used in a previous study (Hammer, n.d.,a) as a device to tap the personality of 400 children of elementary school age, ranging from grades one to eight. Of these 400, 148 were Negro children (Hammer, n.d.,c) and 252 white children in gratifyingly representative (from a socio-economic viewpoint) semi-urban, semi-rural schools.

The H-T-P was employed because it is a quick and easy-to-administer projective technique which seems to be penalized less by group administration than most other projective devices. It was employed also because four of the six clinicians [2] who served as interpreters had received special training in the H-T-P technique directly under John N. Buck (1948a, 1948b, 1950), its innovator, and the remaining two had received their H-T-P training at Lynchburg State Colony, the institution at which this technique had been developed.

In the present study, these 400 H-T-P's were given to the clinician-judges to be rated independently on a scale of aggression from zero to two. A rating of zero represented no apparent aggression or hostility, a rating of one represented mild aggression or hostility, while a rating of two represented severe aggression and hostility. In regard to giving a rating of one or two, the clinicians were instructed to give the former rating if in a psychological report on the subject's H-T-P they would ordinarily mention that there was *mild* aggression or hostility present, and to give a rating of two if they would ordinarily cite *severe* aggression or hostility as present.

Three clinicians served as judges for the drawings of all eight grades of children while three additional clinicians served as judges for the third, fifth and seventh grades in order to afford the opportunities for a spot check.

Correlations of the judgments of the three principal judges were then computed. All six judges, principal and secondary, were put in rank order according to the degree of hostility they apperceived in the H-T-P's (of the students in the third, fifth and seventh grades) they had rated. This rank order was then compared with the rank order in which the judges were rated for hostility by one of the writers, then Supervisor of Intern Training at the institution at which the study was conducted. The supervisor rated the clinicians on the basis of the degree of overt aggression and hostility manifested by them in their interaction with patients and staff members. The clinicians were placed in rank order of hostility before they judged the drawings and they did not know of the dual end to which their ratings would be put until after their data were handed in and their consent obtained.

The drawings were rated by the six clinicians on the basis of the following qualitative signs for aggression and hostility from the *Guide for Qualitative Research with the H-T-P* (Hammer, n.d.,b):

> The drawing of attic windows which are open implies hostile phantasy which causes the person guilt. It has been observed that subjects who are extremely prone to phantasy in hostile fashion frequently provide themselves with what might be called "safety valves" by drawing open windows in the area symbolizing phantasy thinking, the roof.

[2] Three of the six were experienced staff psychologists while the other three were on an intern level.

Windows drawn without panes, curtains or shutters (hence, like the "key-hole" tree below, another depiction of unrelieved, enclosed, white space) may imply hostility.

A tree which consists of a looping line representing the tree's branch structure (unclosed at its junction with the trunk) and two vertical lines closed or unclosed at the trunk's base (thus resembling a key-hole) is taken to indicate strong hostile impulses.

Two-dimensional branches that are drawn resembling clubs or sharply pointed branches or leaves, especially with little organization, imply strong hostility.

A mutilated Person, or a degraded Tree or House, it goes without saying, serves to underscore the patient's hostility. The use of degrading details which serve to symbolize feelings of aggressive hostility may include such depiction as an outhouse drawn beside a House that is otherwise a mansion, a large conspicuous garbage can drawn on the front porch, or a dog drawn as urinating against the trunk of the Tree.

Sharply pointed fingers and toes, as well as other similarly treated details are a reflection of aggressive tendencies, as are teeth prominently presented in the drawing of the face.

Sharply squared shoulders in the drawing of the Person connote over-defensive, hostile attitudes.

Well-outlined, but unshaded hair, in the drawing of the Person suggests hostile phantasy concerning sexual matters.

Arms that are drawn folded across the chest suggest attitudes of suspicion and hostility.

The Person carrying weapons such as guns, blackjacks, etc., clearly indicates aggressive and hostile tendencies.

The Person presented in a threatening attitude (example, fist upraised, etc.) bespeaks aggressive hostility.

Drawings made conspicuously too large for the page, without adequate form page space framing them (particularly when they touch or almost touch the page's side margins), tend to indicate a feeling of great frustration produced by a restraining environment, with concomitant feelings of hostility and a desire to react aggressively (either against the environment or the self, or both).

The qualitative points listed above were employed as broad guideposts in an effort to increase, in some measure, the objectivity of the qualitative approach employed in the present study. The greater the number or intensity of signs of hostility and aggression in a set of drawings, the more inclined the clinicians were to go up the continuum from mild to severe in their ratings. Since the dynamic interrelationship of a sign with all other signs available is of prime importance, however, the drawings were viewed as a Gestalt. An attempt was made to take the total constellation into account at all times.

The six clinicians then submitted to six administrations of the Szondi Test each. The Szondi was chosen as a projective technique to tap the degree of hostility and aggression in each of the clinicians because it represented the clinical tool with which these particular clinicians, had as yet, had no experience and little orientation. In regard to the Szondi technique the clinicians were, for the most part, unsophisticated and uninformed. The Szondi profiles of the six clinicians were submitted to Mrs. Susan Deri for her to place the clinicians in rank order in regard to the degree to which, in her opinion, each clinician possessed hostile and aggressive impulses. This rank order was then correlated with the rank order of the clinicians in regard to the degree of aggression and hostility they interpreted in the 400 H-T-P's.

Results

Rank-difference correlations among the ranks of the three judges were .74, .78 and .84 with standard errors of .031, .030, and .014 respectfully.

All six clinicians, the three main and the three secondary judges were placed in rank order in regard to the degree of hostility they manifested in interpersonal relationships as judged by the supervisor. A comparison of this rank order with the rank order of the degree of hostility they saw in the H-T-P drawings is presented in Table I.

A rank order correlation of .94 with a standard error of .48 is obtained.

The correlation between the rank order of the clinicians in regard to the degree to which they apperceived aggression and hostility in the H-T-P drawings and the degree to which they revealed aggression and hostility, on the Szondi, as a personality component, is also .94 with a standard error of .48. Table II indicates that a reversal in rank order is found in regard to clinicians C and D.

A similar correlation of .94 with the same standard error of .48 is obtained between the rank order of the clinicians' aggression as judged by the supervisor and as judged by Mrs. Deri's analysis of their Szondi profiles.

TABLE I—Comparison of Rank Order of the Average Hostility Index* Given the 400 Drawings by Each of Six Clinicians and the Rank Order of the Degree of Hostility in Each Clinician as Judged by Their Supervisor.

Clinician-judge	Average Hostility Index Awarded the Drawings	Rank Order** of Hostility Index Awarded the Drawings	Rank Order** of Supervisor's Rating	Difference in Rank Order
A	0.49	1	1	0
B	0.51	2	3	1
C	0.57	3	2	1
D	0.63	4	4	0
E	0.90	5	5	0
F	1.12	6	6	0

* A rating of zero represents no apparent aggression and hostility, one represents mild and two represents severe aggression and hostility.
** In order of increasing hostility.

TABLE II—Comparison of Rank Order of the Average Hostility Index* Given the 400 Drawings by Each of Six Clinicians and the Rank Order of the Degree of Hostility in Each Clinician as Judged by Their Szondi Profile.

Clinician-judge	Average Hostility Index Awarded the Drawings	Rank Order** of Hostility Index Awarded the Drawings	Rank Order** of Hostility on the basis of Szondi	Difference in Rank Order
A	0.49	1	1	0
B	0.51	2	2	0
C	0.57	3	4	1
D	0.63	4	3	1
E	0.90	5	5	0
F	1.12	6	6	0

* A rating of zero represents no apparent aggression and hostility, one represents mild and two represents severe aggression and hostility.
** In order of increasing hostility.

As high a correlation was found, then, between the degree of hostility the clinicians "saw" in the H-T-P's and the degree of their own hostility as judged by both their supervisor and Mrs. Deri as exist between the judgments of the supervisor and Mrs. Deri.

Discussion

To turn to the question of the correlation of the judgments made by the three main judges, correlations ranging between .74 and .84 suggest a reasonably high degree of reliability among clinicians rating qualitative factors such as hostility and/or aggression on the basis of the H-T-P. In spite of these reassuringly high correlations, however, it appears that much subjectivity enters into and distorts the interpretation of these factors on projective drawings.

The supervisor's judgment[3] of the degree of the clinicians' hostility and aggression as manifested in their interrelationship with patients and staff members was found to correlate to a marked degree with the proneness of the clinicians to see hostility in the drawings of other subjects.

This finding may be partially explained by the differences in *sensitivity*[4] on the part of the various clinicians to the particular personality factor aggression. In addition, the differences among the clinicians' interpretations of the projective technique is probably further due to the fact that when interpreting a projective technique clinicians tend to *project*[5] as well as interpret. This conclusion appears to be supported by (1) the relatively high correlation between the supervisor's ratings of hostility in the clinicians and the degree to which they saw hostility in the 400 H-T-P's they interpreted, (2) the relatively high correlation between the degree of aggression and hostility in each clinician as suggested by his Szondi profile and the degree to which he apperceived aggression and hostility in the projective drawings he interpreted, and (Brink, 1944) the fact that clinician F, for instance, awarded the drawings an average hostility index which approaches the point of being twice the mean hostility index awarded by the other five judges (so marked a deviation, on the part of one trained clinician, from the other five suggests the operation of *projected* hostility, beyond *sensitivity* on his part).

Since all visual perception involves the process of selection, to greater or less degree, it is to be expected that there would be individual differences between clinicians in the extent to which they interpret various personality factors from projective drawings of their subjects. Anyone who has had experience as a supervisor of psychology interns or has worked in a setting with many psychologist-colleagues has been impressed with the shortcomings of the role objective factors play in the interpretation of projective techniques and the degree to which subjective factors color such interpretations. Just

[3] The validity of the supervisor's judgments were supported by the correlation with the clinicians' Szondi protocols.

[4] This term is used as a concept denoting *sensitivity* to the perception of existing situations or stimuli (in accord with the concept of Bellak and Abt that a stimuli that is congruent with a preexisting configuration is more readily perceived than one that is not).

[5] *Projection* is used to denote the process of attributing one's own feelings, conflicts, etc., to outside stimuli, people or situations. This concept when applied to projective tests is broadened to include not only unacceptable and repressed but also acceptable and conscious tendencies.

as a subject's performance on a projective technique is a function of his personality, his needs, conflicts, desires and past experiences, so too, although to a lesser degree, is the interpretation of a projective protocol influenced by the personality pattern of the interpreter.

Projective interpreting deals with material which is emotional, oftentimes subjective and usually partly unconscious—material which the interpreter finds difficulty in viewing in a wholly objective manner. Projective drawings produce latent as well as manifest, symbolic as well as concrete material, some of which cannot be directly assessed, but must first be perceived and interpreted through the eyes of the interpreter. It is at this point that his own needs may infiltrate and influence his interpretive formulations.

CONCLUSIONS

As the results of the study were obtained from one group of clinicians only, and that group a small one consisting of but six members, the reliability of the results should be tested on other and larger groups. The following tentative conclusions, however, (the further reliability and validity of which can be established only by future and more extensive studies) seem justified:

1. There is a relatively high degree of reliability among clinicians in the present investigation in their ability to judge the degree of aggression and hostility as manifested in a subject's free-hand drawing of a House-Tree-Person.

2. In spite of this high degree of reliability, the clinicians' interpretations appear to have been, in part, determined by their own projections and areas of sensitivity.

3. Content or qualitative analysis of projective technique protocols, notably projective drawings, should therefore be employed with caution until more objective research is available and the subjective aspect of interpretation is controlled or minimized.

4. More extensive studies of the role played by the personality of the clinician in interpreting projective techniques should be undertaken with larger groups of clinicians and in investigation of other projective techniques such as the Rorschach and TAT.

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Self-Interpretation of the TAT as a Clinical Technique [1]

LESTER LUBORSKY, PH.D.
The Menninger Foundation

Suppose that, after a patient has been given the TAT he is asked to interpret certain of his own stories. Can the tester learn more this way than he could by using the TAT alone?

On the face of it such a procedure should have decided advantages for the tester by decreasing his personal projections while interpreting the test, and by making it clear what part of the stories are the patient's autobiography or fantasy. The procedure may indicate the identification figure in the story and other family figures. It certainly ought to make clear the patient's degree of acceptance of the story content and the defenses he uses in dealing with the content. It may also have the additional advantage of forcing the patient's attention on important material about himself. This technique would round out most diagnostic test batteries by being the only procedure requiring the patient to talk about himself directly. Because the self-interpretation procedure is a task requiring special abilities like self-objectivity and psychological mindedness, it may be more than a supplement to the TAT—it may possess special implications for diagnosis and therapy.

This is the self-interpretation procedure. After giving the TAT in the usual manner, I say, "Please try to interpret these stories by telling me what they show about things you have done in the past and especially, what they show about what you are like as a person. Try to make it clear how you get your interpretations from the story you have just told." Before each self-interpretation, the story is read back to the patient with the explanation that it's being read so that he can have it clearly in mind and give it detailed consideration. Even with this amount of instruction it's often necessary to give more encouragement and explanation. For example, when a patient gives only similarities in his past history to events in the TAT story, the examiner should say, "and what does it reveal about the qualities of your personality?" Everything the patient says in the test, including the period during which the instructions are being given, is recorded so that it is possible to see the development of his comprehension of the task.

Four standard cards are always given; stories told to these four take about 20 minutes to a half hour to self-interpret. The cards used (for males) are: 6BM for mother-son relationships, 7BM for father-son relationships, 13MF for interaction with heterosexual partners, and 16, the blank card, usually for present wish-fantasies which are near to consciousness. For females, 6GF and 7GF are used instead of 6BM and 7BM. If more time is available an especially significant card is added. The story to Card 11, told with instructions to

[1] This report is a slight revision of a paper given at the 1950 A.P.A. roundtable on the TAT. The author is indebted to the other two members of the research project on the selection of psychiatric residents, Drs. Robert R. Holt and William R. Morrow, for trying out the self-interpretation technique in selection and to psychologists of the Menninger Foundation for suggestions based on experiences with the self-interpretation technique in their clinical practice.

tell a fairy story, is a good addition for self-interpretation, since it usually taps material at a different level than the other cards. Occasionally at the end as a "testing of the limits" the patient is given a simple explanation of the rationale of the TAT and asked to add to his interpretations.[2]

My major experience with self-interpretations has not been with patients but started with about 100 doctors who applied for training in the Menninger School of Psychiatry. It seemed to be a relevant test for assessing a psychiatrist's abilities. Concurrently, the self-interpretation is being used with a variety of patients who apply for evaluation or treatment at the Menninger Foundation's Department of Adult Psychiatry. So far self-interpretations have been obtained from about 50 patients.

[2] Some other varieties of procedures might be explored, although it is better to stick predominately to a single procedure—it will be easier to build up experience with approximately the same test situation and later variations can then be compared with the known standard situation. A common practice at the Menninger Clinic is to ask for self-interpretations of those stories the patient selects as especially significant. It may be worthwhile to have all cards self-interpreted when time permits. Bettelheim (1947) reports that in this way it is possible to see the development of insights in the course of the series. Dr. Robert R. Holt suggests some instructions that he has used successfully with patients who are less sophisticated than our psychiatrists or Menninger Clinic patients: "You know, when a person makes up a story, he can't help telling something about himself. Take this story of yours and tell me some of the ways you put yourself into it." Or, "What do you suppose I can learn about you from this story you told?" Another variation, that of asking for an interpretation in the third person, "what might this mean about a person" is not recommended since it is not clear how well the patient can apply the interpretations he gives to himself. But Dr. David Rapaport suggests as an experimental technique *after* the procedure recommended in the present article, that the patient go back and deal with each story with the attitude "if it were written by another person."

Illustration of Method

A sample story and interpretation might help make the method clearer. The patient, a 30-year-old woman diagnosed a "mixed neurosis" because of strong obsessive and hysterical defenses, had an extremely masochistic relationship to her husband and was depressed at the time of testing. This is the story she told to card 6GF (a picture of a woman sitting on a couch and a man with a pipe standing over her):

THE STORY:

Well the woman looks like she's very surprised about something and . . . looks like the man's just told her something she's surprised about. The man looks much older than she is. Might be her father . . . I don't know, I can't think of anything else about this. (What led up to it?) Well it might be that he's trying to make love to her but I don't think of that at first. Yeh, I think that's what it is and she's very startled by it but she doesn't seem to be looking at him very unpleasantly though and I think he'll have his way. (What will happen in the future?) Oh, she'll give in to him.

THE SELF-INTERPRETATION:

. . . Well, I don't think she's at all like me from this picture. She looks very sophisticated, and well groomed and sure of herself and I don't think I'm any one of those things. She looks surprised but she doesn't look frightened . . . that's . . . I just don't identify myself with her at all—I can't say anything else about it. (Anything about you?) Just by contrast, what I've told you and kind of wishful thinking that I did have some of her poise, to feel more sure of myself than I do.

Certain characteristics of the above self-interpretation are striking:

1. The patient's psychological acu-

men. She recognized explicitly the mechanisms of identification and wish fulfillment in the story.

2. The way in which she first seemed to deny and then accepted the meaningfulness of the story. She first said "I don't think she's like me" and then showed at the end that the contrast was caused by her own "wishful thinking." It may imply that the patient has a capacity for the development of insight. (This was further confirmed by other interpretations and by the impressions of her therapist.)
3. The large areas of lack of insight. She said nothing about the father in the story, the incest suggestion, or her blocking at this point of her story. Apparently she also had little awareness of the extreme submission (perhaps an expression of her masochism) implied at the end of the story by "she'll give in to him."
4. The form of the defense against fear may be indicated by her reiteration that the woman doesn't look frightened. The patient implied that the woman she would like to be like does not become frightened. When the patient allows herself to feel frightened she may feel deficient as well.
5. The consistently severe negative self-feelings go with her depressive trend, lack of confidence, and probably poor self-objectivity.

SOME RESULTS

Both the patients and the applicants for psychiatric residency have gone about the task in many similar ways. Of course the psychiatric residents used language which was more sophisticated and recognized explicitly many more psychological mechanisms than the patients. Most patients and some residents had difficulty at first in understanding the request to "interpret." They often were initially surprised that the stories had meaning and some said "I don't think these tell anything about me"; however, the great majority of them eventually recognized something of themselves.

Implicit or explicit interpretive assumptions. Most often subjects recognized (1) autobiographical similarities, that is, something in the story was the same as their own past history. Or, very often they recognized (2) a personality similarity to one of the story heroes; for example, a statement like "I have dependent needs just like the person in the story" usually involves the apparently obvious recognition [3] that he has projected his own qualities onto the story figures. Slightly more perceptive subjects said "this is the way I want to be"; that is, they use (3) a wish-fulfillment interpretation. More sophisticated subjects, mainly the residents, recognized the possibility of (4) multiple identifications, or (5) their own varying degrees of consciousness of the TAT material, or (6) both sides of ambivalent feelings in themselves as expressed in the story.

Acceptance versus denial of meaningfulness. At present the above interpretive assumptions seem to be of value, mainly, as they bear on this second important dimension of the procedure. Two questions need exploration: how easily can the subject accept the idea that the many contents of each story have personal meaningfulness

[3] Surprising as it may seem at first, patients (and people in general) sometimes make such statements and further questioning by the examiner reveals an attitude that might be paraphrased: "My, what a surprising *coincidence* that this person in the story is like me!"

and what are the forms of denial or resistance to seeing meaningfulness? The form varieties of denial were difficult to recognize except when they were massive, especially in the candidate group. Both the better and the poorer candidates made direct denials of specific contents.

Eventually, certain types of statements became understandable as a rejection of meaningfulness. The first type was "universalization": the subject made defensive statements implying that the characteristics of the story were not only his own but everyone had them. He seemed to be trying to reassure himself that these things were not individually meaningful or peculiar *because* everyone was that way. The second way of denying was a bit more direct: the story content was ascribed to an external or peripheral source, as for example, "this was taken from a movie I just saw." The third way was to ascribe the source of a story to a real characteristic of the picture, as for example in Card 13MF, "the appearance of the woman indicates she is quite ill and the man's attitude shows the hopelessness of the situation." Both the use of external sources and picture sources are ways of showing that the subject believes that the story idea came from something objectively determined rather than personally determined. When these sources are referred to often, it implies that the subject is seriously lacking in psychological mindedness. A fourth type of denial of meaningfulness was expressed, paradoxically enough, through the use of "autobiographical similarity," for example, by the statement, "this is only what happened to me before and doesn't mean anything else about me." Thus, a patient uses a very limited insight to block the development of deeper insights. Autobiographical similarities also were often pointed out in a context of accepting meaningfulness, e.g., "This happens to have really occurred, and it shows my anxiety in such situations when I'm afraid of becoming too angry."

Some obvious forms of denial carried other implications about personality, especially typical defenses. For example, projective tendencies were shown (a) by feeling *accused* of the content of the story, as did the patient who in answer to a non-directive inquiry brought in a number of points only to deny them: "I'll admit I'm jealous of other people" or, "I didn't think nothin' of killing my wife"; and (b) by feeling that the examiner had ulterior motives in choosing particular pictures for self-interpretation; for example, "You certainly managed to choose the sadistic cards."

Capacity for personality development or growth. The strength of this capacity was indicated in many ways; (1) some subjects who initially denied meaningfulness began to recognize meaningfulness during the time they looked over their stories. This indicated an ability to improve, to change, to relax rigid defenses. During the self-interpretation, some subjects (2) discovered facts about themselves in their stories of which they were not aware before; e.g., "Many of the conflicts I thought I had overcome are still here;" (3) Some people talked in terms of *solving* or *accepting* or *recognizing* problems in themselves with which they are struggling; e.g., "I haven't come to grips with the fact that I'm no longer a mother's son only;" (4) Some described insights which they did not have when they were younger, or (5) improvements in their relationships with their parents or in

other aspects of their personalities which function better now than earlier. These five direct expressions of the capacity for personality growth are especially frequent in the better psychiatric residents and in the patients who probably have the best prognosis with therapy.

Quality of feelings about self and parents. In addition to examining these statements qualitatively, an attempt was made to quantify one aspect—the "positiveness" or "negativeness" of the feelings. When each statement about self and parents that was *clearly* positive or *clearly* negative was scored, almost all of an extreme group of 11 better psychiatrists ("highs") had *both* positive and negative self-feelings, and almost all of the 11 poorer psychiatrists ("lows") had only positive or only negative statements. The same type of analysis for statements about parents discriminated equally well. Both the self- and parent-statements continued to discriminate in a first cross-validation of 30 residents. But on a second larger cross-validation the discriminatory power of these scores virtually vanished! (See footnote 7).

What remains constant in the successive cross-validation groups is (1) the large number of subjects who are self-consistent in "self-positiveness," "self-negativeness," or "self-balance," [4] and, (2) the generality of feelings about self and parents [5]—balanced feelings to self go with balanced feelings to parents and unimodal feelings to self go with unimodal feelings to parents.

DEVELOPMENT OF THE METHOD AS A CLINICAL TECHNIQUE

An inquiry following the TAT stories is not new. Murray (1938) recommended that the examiner ask the patient whether his story had come from something he had seen or read or whether it had come out of his personal experience. He has also used the procedure of asking the subject to say what comes to his mind when certain words and topics from the TAT stories are mentioned. Stein (1948), in his manual for the TAT, also recommended two types of inquiry: first, an intermittent inquiry during the course of a story, the purpose of which is to make the story more complete, and second, at the end, an inquiry into the source of the stories in the same manner as Murray's. Bellak's (1951) guide includes a similar suggestion for inquiry into the stories.

[4] The next step of exploring the common personality features of persons within these three groups has been done only cursorily. In understanding the results of this preliminary validation it must be remembered that the self-interpretation task was done by almost all of the would-be psychiatrists as part of their evaluation. The "negatives" are easiest to generalize about: they tend to handle stressful inter-personal situations by self-punitive behavior, proneness to depression, becoming less expressive, wanting people to be sorry for them. (The patient described in the Illustration of Method is a good example of negative self-feelings.) The "positives" tend to handle stressful interpersonal situations by bragging and a "well-met" self-satisfied veneer, asserting their lack of defects. The largest group (N = 25 of 102 cases), the "balanced," attempt to demonstrate *intellectual* understanding. They are often described by their supervisors as intellectualizing, academic, serious, maintaining much emotional distance from patients, attempting to find theoretical formulae to understand patients and prone to become argumentative with supervisors.

[5] Several studies of psychotherapeutic interviews have also shown the generality of acceptance-rejection of self and others, e.g., Sheerer (1949), and Stock (1949).

These methods of inquiry into sources of stories differ from the one that I have been using which requires the patient to make interpretations about his own personality. The sources inquiry is apt to get relatively unnecessary information—the patient may say, for example, "this is the same plot as a movie I saw recently." But why is this information of value? The story whose "source" is a "recent movie" is *just* as likely to be meaningful as any others which he sees as from his own private fantasy life. What would have been important to know is, whether the movie plot source of his story constitutes to him a sufficient explanation of the story or whether he can give other more psychologically meaningful determinations, such as ways in which he is similar to the hero, or ways in which one of his own wishes is expressed. The essential difference in the two techniques is that the sources inquiry is satisfied with autobiographical similarities and other associations; mine presses the subject to see himself in his stories in one way or another. To make a comparison with interpretation of a dream: a sources type of inquiry to a dream might yield "day residues" and other associations *without* the patient feeling the charge to relate the dream to himself—this responsibility is emphasized in the self-interpretation technique. The basic idea for doing self-interpretation in this way is from Dr. Bruno Bettelheim (1947), although the focus of his interest was on the educational and therapeutic value of the procedure.[6] His excellent article exemplifies the fruits of dynamic analysis of several self-interpretations of TAT's of his students.

The results with the method when used as a device for selecting psychiatric residents have not been encouraging. From a study of known extreme groups of 11 residents rated excellent and 11 rated poor (judged principally on the basis of ability as a psychotherapist), a manual was developed with 25 differentiating characteristics of self-interpretations, which was tried on a new but unknown group of 30 psychiatric candidates. This first cross-validation yielded low positive correlations, but the validity vanished in a second cross-validation on a larger number of cases.[7] Many of the categories in the manual which did not work in predicting performance as a psychiatrist

[6] Other applications of self-interpretation procedures using the TAT are described by Bellak, Pasquarelli, and Braverman (1949), Deabler (1947), Dymond (1947, 1949), Fowler (1943), Jaques (1945), Combs (1946), and Rosenzweig (1948). Self interpretation type of inquiries have been used with several other diagnostic procedures, e.g., Machover's man drawing procedure, Buck's H-T-P, and the Word Association procedure which is sometimes used by Dr. Walter Kass with the instructions "Pick out any significant associations and tell what it tells about you."

[7] The first cross-validation gave a correlation for the simple sum of manual cues of .43 with performance after one year of training when scored by myself, and .21 when scored by an assistant, Mrs. Glenna Webster Tetzlaff. This discrepancy shows considerable overall unreliability, but many of the individual categories were found to have good reliability. On the basis of an item analysis of the 30 cases, the manual was revised to its present form of 25 categories and cross-validated on a new group of 50 psychiatric candidates by three independent judges, Drs. Robert R. Holt, William R. Morrow, and myself. The correlations both for the sum of cues and clinical ratings failed to predict the criterion (supervisors' ratings) significantly. A change in the technique (which may or may not be relevant to the lowered validity) in the second cross-validation group seemed to result in less rich material: the subjects wrote the self-interpretations instead of giving them in an individual interview.

appeared nevertheless to be diagnostically useful.

Now my main aim is to develop self-interpretation of the TAT as a clinical procedure by surveying the ways patients go about this task, and by summarizing these ways in the form of a manual. The manual will contain scoring categories with examples to aid scoring and inferences about the meaning of each response category. On the basis of experience with patients and applicants for training in psychiatry, a preliminary form of clinical manual containing 60 categories has been developed. This manual is now being tried in routine diagnostic work with patients by several psychologists at the Menninger Clinic.[8] That is the history so far. Validation will be continued by relating the categories with characteristics from the TAT and other tests, with psychotherapy notes and with psychotherapy outcome, and by repeating the self-interpretation task, to see how it changes during later stages of psychotherapy.

SUMMARY

A standard procedure and categories for the systematic analysis of results for the self-interpretation of the TAT is proposed here. Four areas in which the procedure seems especially informative have been described in this report: (1) the implicit or explicit ability of the patient to recognize the mechanisms that went into the construction of his stories; (2) the many ways in which acceptance or denial of meaningfulness of the story content can be expressed, especially, the dimension of external determination of stories versus internal or psychological determination; (3) several ways of inferring the patient's capacity for personality growth; and (4) a way of scoring feelings to self and parents. All of these areas require much more validation before we can fully understand their diagnostic and therapeutic implications.

[8] A limited number of mimeographed copies of this 24-page preliminary form of the clinical manual are available for 10c in stamps to cover costs of mailing.

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Perceptual Consistency as Measured by the Rorschach [1]

LT. COL. ARTHUR J. ORANGE
Fitzsimons Army Hospital, Denver, Colorado

INTRODUCTION

The consistency of human behavior is necessarily a paramount subject of interest to students of personality. Consistency in the functioning of personality is traditionally considered to be significant for diagnosis and prediction in clinical practice. We realize from experience that the behavior of friends and relatives conforms to certain expectations. Self-consistency as an essential attribute of the ego-concept is propounded as the focal idea in a recent important theory of personality (Lecky, 1945). This versatile assumption has, therefore, attained axiomatic status in our thinking about personality and its problems. The time has arrived for it to be subjected to the critical tests of scientific verification.

It seems likely that the most stable functions in behavior are those which have to do with the formal aspects of the individual's commerce with stimuli. It is these capacities, chiefly of an intellectual order, which he utilizes to initiate and maintain interaction with stimuli or tasks. If successful in enabling the individual to establish an adjustment to his environment, they ordinarily become habitual and are considered characteristic of him by others. They represent the individual's "mode of attack" upon problems or tasks. Whatever consistency can be demonstrated in behavior we should expect to be most easily shown in this area.

The importance of perception as a key to the understanding of personality has become generally recognized (Blake, 1951). We may consider variables in perception as reflecting cognate dimensions in personality. Consistency in perception may be treated as correlated in some way with consistency in the personality that perceives. Therefore, an approach may be made through the measurement of consistency in the variables of perception to an evaluation of the consistency in personality. This is in keeping with the integrated or holistic conception of personality.

Of all the instruments available for the study of perception, the Rorschach test offers itself as one of the most helpful. The development of techniques of scoring or quantification has made the test practical for manifold research operations. As a projective test, its ambiguity obviates any consistency provoked by structuredness in the mere stimulus-material itself. In the study of consistency or reliability of behavior, however, the Rorschach test has the disadvantage of lacking alternate or equivalent forms. Repeating the test invokes the risk of familiarity and recall of previous percepts. There is some question as to whether the alternate forms of Behn-Eschenbach and Harrower-Erickson are actually equivalent forms of the Rorschach. For these reasons, it seems advisable in efforts at determining the level of consistency of behavior as reflected by the Rorschach to employ other methods of ascertaining reliability, such as the split-half.

[1] The writer wishes to express his thanks to Professor Donald W. Fiske of the Psychology Department of the University of Chicago for stimulating advice and guidance in the preparation of this study.

Earlier studies of Rorschach split-half reliability by Vernon (1933) and Hertz (1934) have not proved satisfactory for various reasons. Vernon divided the test into halves which he considered subjectively to be roughly equivalent in stimulus-import. His administration and scoring were relatively primitive. Hertz, although she employed a standardization group and invented an improved scoring-scheme, used as subjects for her main study children between twelve and sixteen years of age, and restricted the total response-time on each card to only two minutes. The use of children as the sole subjects may be objected to on the grounds that their limited experience as contrasted with adults has the effect of narrowing their range of percepts (e.g., percepts largely of animals) so that a certain consistency may be expected as a result of deficit of apperceptive content. The two-minute limitation of response-time also has grave implications for the validity of the study in that it renders unavailable data that could be offered by slow subjects. Although her correlations representing consistencies were strikingly high when "corrected" by the Spearman-Brown formula, the deficiencies of restricted sampling and atypical administration render their interpretation equivocal. Furthermore, her reliabilities were derived from formulas based on the assumption of normality of distribution, a tenuous assumption for many Rorschach variables (Baughman, 1951).

Three hypotheses were framed:

(1) Individuals are consistent in manifestation of the formal aspects of perception as measured by the Rorschach test.

(2) Consistency in the formal aspects of perception will be a function of the degree of structuredness of the test-stimuli.

(3) Relative consistency between groups in the formal aspects of perception as measured by the Rorschach will be a function of the adjustment of the groups.

SUBJECTS AND PROCEDURES

Two groups of 25 subjects each were formed, one consisting of neurotic patients under treatment at the neuropsychiatric service of a large military hospital, the other of duty-personnel from the headquarters detachment. The latter were selected as "normal" controls on the basis of no history of serious maladjustment, recommendation by the senior non-coms, and brief screening for present adjustment by a staff psychiatrist.[2] The Normal and the Neurotic Groups were matched by pairs for age to the nearest year and for mental level on the military classification tests. The age-range of the groups was from 19.5 to 40.5 years, with the mean age at 28.1 years. The two groups were matched at various levels on the military mental classification tests as indicated in Table I. They comprised samplings chiefly of the average and above-average levels of mentality.

TABLE I—Mental Levels of Subjects In Matched Groups

Level	Frequency
I	0
II	10
III	12
IV	3
V	0

The Rorschach test was administered individually to all 50 subjects, using the Beck (1950) meth-

[2] My thanks are due to Lt. Col. William B. Anderson, Medical Corps, United States Army, for his services in screening the Normal Group.

od. However, two comparative innovations were introduced into the Beck scoring: only Original responses of good form-quality were scored, and an arithmetical formula was used for computing Sequence. This consisted of a fraction for each card formed by a denominator made up of the total number of shifts in location from one percept to another, plus a numerator based on the number of these shifts performed in a "regressive" direction, i.e., contrary to the expected progression from Whole Response to Major Detail to Minor Detail. Sequence-fractions of the separate cards were summated to obtain a total fraction for the 10 cards for each subject.

Eleven variables, representing the more formal aspects of Rorschach behavior, were scored: Time of Initial Response (T/IR), Time Per Unit (T/U), Resistiveness (S), Originals (O), Populars (P), Whole Responses (W), Major Detail Responses (D), Minor Detail Responses (Dd), Sequence (Sq), Total Frequency of Responses (R), and Form-Quality (F+%).

The 10 cards were grouped into the usual Odd and Even (O-E) halves. A team of eight judges further divided the test into Structured and Ambiguous (S-A) halves, the criterion of "structuredness" being the greater degree of definition of possible objects or figures represented by the cards. The Structured half of the test estimated in this way consisted of Cards II, III, V, VIII, and X, the Ambiguous half of Cards I, IV, VI, VII, and IX.

The subjects were ranked within each group as to score for each of the 11 variables on each of the four splits. Kendall's (1948) Tau was employed for rank-order correlation of Odd with Even and Structured with Ambiguous halves. Use of this non-parametric statistic does not require an assumption of normality of distribution. Significant correlation (.05 or below) of split-halves in regard to group performance on any variable was considered to indicate consistency for the group in that variable. Eleven correlations were worked out for each split, making 22 correlations per group and 44 correlations in all. They are assembled in Table II.

Results and Discussion

The Normals showed O-E consistency in T/IR, T/U, P, W, D, and R. Normals were also consist-

Table II—Split-Half Correlations for 11 Rorschach Variables

Determinants	Normal Group				Neurotic Group			
	Odd-Even		Structured-Ambiguous		Odd-Even		Structured-Ambiguous	
	Tau	P*	Tau	P	Tau	P	Tau	P
T/IR	.40	.01	.52	.01	.70	.001	.58	.001
T/U	.65	.001	.65	.001	.68	.001	.69	.001
S	.12	.42	.00	1.00	.09	.54	.10	.50
O	.06	.69	.02	.90	.16	.29	−.16	.29
P	.33	.03	.20	.18	.22	.15	.26	.08
W	.47	.01	.45	.01	.46	.01	.29	.05
D	.36	.02	.33	.03	.48	.001	.26	.07
Dd	.24	.13	.46	.01	.40	.01	.29	.06
Sq	−.09	.60	−.03	.88	.31	.06	.34	.03
R	.49	.01	.53	.001	.71	.001	.73	.001
F+%	.07	.67	.09	.55	.20	.18	.12	.41

* Level of Significance

ent in the S-A split on the variables of T/IR, T/U, W, D, Dd, and R. The Neurotic Group was consistent on the O-E split in T/IR, T/U, W, D, Dd, and R. They showed S-A consistency in T/IR, T/U, W, Sq, and R. For both groups the number of correlations significant of consistency in each type of split-half was far better than chance.

As regards hypothesis (1), it can be maintained that the individuals constituting both the Normal and the Neurotic Groups evidenced significant consistency in so many of the variables pertaining to the formal aspects of perception as measured by the Rorschach that we are justified in inferring a general consistency of perception, at least in the functions relevant to these variables.

This inference becomes more cogent when we consider the fact, as revealed in Table II, that for the Normal Group an additional correlation in the O-E split and one more in the S-A approach significance from the .20 level and beyond, while for the Neurotics three correlations each in the O-E and S-A splits are close to significance. If we allow for the variance attributable to error in the instrument and in our still relatively crude quantification, we may conclude that true individual consistency in formal aspects of perception is in general very high.

The component of structuredness in the Rorschach referred to in the second hypothesis apparently does not modify significantly the consistency of whatever functions are operative in formal aspects of perception. The reasons for this are not clear at the present time.

Hypothesis (3) is not substantiated by our results. Differences in the number of variables found consistent for the Neurotic as contrasted with the Normal Group in both the O-E and S-A split-halves are not statistically important. Possibly for tasks such as are involved in the Rorschach, the intellectual functioning of neurotics is not greatly different from that of normals. More significant differences in the consistency of formal variables might be anticipated from the performance of more disturbed groups, such as the psychotic. It may be, also, that the operation of these intellectual functions is relatively resistant to effects of maladjustment.

The consistency of the Time variables and of Total Frequency of Responses is notable for both groups. This may be attributable to factors possibly of physiological order concerned with rhythms and periodicties of the organism and with energy output and control. Studies such as that by Rimoldi (1951) on characteristic individual tempos in behavior are suggestive of such a contention.

Consistency of Whole Responses, although slighter, was also marked. It may represent a basic organizational function in personality developed differentially in individuals. However, the fact that the Beck scoring-system does not discriminate quantitatively among the varieties of Whole percepts (e.g., Secondary Wholes, Cut-off Wholes), some of which may be qualitatively different from the pure Whole response, may render the Whole category too inclusive in our study and promote a spurious consistency.

Although the method of investigation in this study was not adapted to evaluation of the interaction-effect or relative influence of the variables treated—that is, it did not take into account the so-called pattern or gestalt of variables—nevertheless, important consistencies in

perceptual behavior did reveal themselves at the part or atomistic level. Again, contrary to the contention of Rosenzweig (1951) and Sargent (1948) that the factor of differential stimulus-import on the Rorschach renders employment of split-half techniques theoretically impracticable, the establishment of extensive reliabilities in this study precipitates the challenging conclusion that organizational functions in perceptual behavior are self-assertive despite changing stimulus-configurations.

Finally, the significant number of consistent variables in formal aspects of perception reflected by the Rorschach may be considered to afford evidence for the internal consistency of the test.

Summary

A study was undertaken to evaluate the consistency of formal variables of perception as elicited by the Rorschach. The test was administered to two matched groups of subjects, one normals, the other neurotics, the protocols being scored for 11 pertinent variables.

Rank-order correlations based on split-half comparisons showed that many more variables than could occur by chance were consistent for each group. No significant differences, however, were evident in the levels of consistency manifested by the groups.

Introduction of the factor of structuredness did not provoke significant deviations in consistency.

Interpretations were attempted for the high consistencies recorded by the Time, Whole, and Total Frequency of Responses variables.

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An Evaluation of Anatomy Content and F+ Percentage in the Rorschachs of Alcoholics, Schizophrenics and Normals [1]

EUGENIA SHERESHEVSKI-SHERE, PH.D.
Consulting Psychologist, Connecticut Commission on Alcoholism

LEONARD M. LASSER, M.D.
Formerly Physician-in-Charge, Blue Hills Hospital, Connecticut Commission on Alcoholism

BENJAMIN H. GOTTESFELD, M.D.
Physician-in-Charge, Blue Hills Clinic, Connecticut Commission on Alcoholism

From a previous study by two of the authors (Shere-Shereshevski and Lasser, 1952) it was found that no consistent correlation existed between the number of water responses in the Rorschach and the behavior of drinking in the alcoholic. The original aim had been directed at determining whether or not the Rorschach contents would reveal a particular personality function in the alcoholic. At that time ten content categories were dealt with: anatomy, animal, botany, landscape, water - associated responses, map, cloud, blood, fire and food. The results of water-associated responses only were reported.

In the course of continued study, significant findings were observed with respect to anatomy responses, but in no other content category. Therefore, as one of its objectives, the present investigation is directed at evaluating these anatomy responses and their significance in relation to the personality function of the alcoholic.

Anatomy responses are generally considered to reflect concern about and fears of bodily harm. Phillips (n.d.) believes that these fears are derived from a sensitivity to and concern with the expression of destructive impulses and the resultant possibility of retaliation. He states that people who act out their destructive impulses do not develop anatomy responses. Klopfer and Kelley (1942) believe that anatomy responses are indications of insecurity. Piotrowski (Brussel, Hitch and Piotrowski, 1950) feels that a high number of them reflects feelings of intellectual inferiority. It is generally accepted that a normal record should show only one anatomy response, and a greater number of responses are seen in individuals who present pathology. Exceptions may be found in medically trained individuals.

In defining and classifying the problems encountered in the alcoholic, difficulties in their handling of reality are found to be incisive, and the use of alcohol seems to represent only one method of coping with reality. These observations led to an evaluation of reality testing as measured by the F+ percentage in the Rorschach (1942). The method used in obtaining the F+ is that proposed by Beck (1944). The F+ percentage is a representation of ego strength and integrity, and reflects the ability to perceive reality with optimum accuracy and minimal distortion.

This study is an attempt to correlate Rorschach findings with basic attitudes and motivations of the alcoholic. The behavior of drinking is dealt with only as it pertains

[1] From the Blue Hills Hospital and Clinic, Connecticut Commission on Alcoholism, Hartford, Connecticut.

to the more general manifestations of aggression and fear. Rorschach content does not seem to reflect behavior so much as basic attitudes. Phillips (n.d.) feels that manifestations in behavior depend upon the extent of the pathology, the level of social adjustment, and the awareness of one's own and others' attitudes and that these things can only be inferred from the noncontentual aspects of Rorschach performances.

Methods and Materials

The material for this study was obtained from the Rorschach and clinical examinations of 65 random admissions to the inpatient and outpatient departments of the Blue Hills Clinic. A group of 36 normal and 36 schizophrenic records were made available by the Department of Psychology, Research Division, Worcester State Hospital, Worcester, Massachusetts.

Attention was devoted to matching the alcoholics and the two other groups with regard to age and length of record (as determined by the number of responses) (Cronbach, 1949). Records containing less than ten responses were excluded. Since no women were present in the two comparative groups, they were also excluded from the alcoholic group. No attempt was made to subdivide the schizophrenic groups into diagnostic categories.

The anatomy responses were obtained from both the periods of free association and inquiry. The content category of anatomy includes bony and visceral anatomical responses of humans and animals, X-rays, and responses pertaining to sex organs. Early attempts to differentiate between bony and visceral anatomy responses were abandoned since no significant differences were seen.

In evaluating the F+ percentage as an indication of reality testing, the minimum and maximum normal ranges of 65% and 80% proposed by Rapaport (1946) were used.

Results

Table I presents alcoholics, normals, and schizophrenics, each divided into three separate subgroups in terms of number of subjects, mean ages and mean number of responses, with their standard deviation. Sub-groups A, B and C were determined by matching both the ages and the mean number of responses.

In studying the anatomy responses, results were tabulated in terms of numbers of responses for each group. In this manner we

Table I*—Description of Groups

	Number of Subjects	Mean Age Years	Mean Age Months	Mean Number of Responses
I. *Alcoholics:*				
Sub-group A	37	40	10 (6.3)	14 (2.7)
Sub-group B	20	41	7 (6.9)	33 (12.7)
Sub-group C	8	26	10 (2.8)	20 (10.8)
II. *Normals:*				
Sub-group A	19	37	8 (5.3)	15 (3.2)
Sub-group B	10	35	11 (3.6)	25 (2.8)
Sub-group C	7	23	5 (4.1)	23 (7.5)
III. *Schizophrenics:*				
Sub-group A	17	38	7 (5.1)	14 (3.6)
Sub-group B	9	35	1 (6.4)	33 (10.4)
Sub-group C	10	25	8 (1.8)	25 (10.6)

* Standard deviation indicated in parentheses.

TABLE II—Percentage of Records in Each Group with One or More, Two or More, Three or More, and Four or More Anatomy Responses.

	No. of Records	Median of Responses	One or More	Two or More	Three or More	Four or More
Alcoholics:	65	16	71	49	32	26
Normals:	36	18.5	56	33	14	11
Schizophrenics:	36	20	75	67	61	41

TABLE III—Ratio of Percentage of Anatomy Responses in the Three Groups*

	One or More Responses		Two or More Responses		Three or More Responses		Four or More Responses	
Ratio of % of Alcoholics to Normals	1.27	(0.13)**	1.48	(0.11)**	2.28	(0.03)	2.37	(0.05)
Ratio of % of Alcoholics to Schizophrenics	0.95	(0.66)**	0.73	(0.07)**	0.52	(0.003)	0.63	(0.13)**
Ratio of % of Schizophrenics to Normals	1.34	(0.08)**	2.03	(0.002)	4.36	(<0.0008)	3.73	(0.002)

* Figures in parentheses indicate the probability that the difference between the two groups is not the result of chance. Probabilities were obtained from critical ratios employing the standard error of a percentage (Garret, 1947).

** Indicates that the result could have occurred by chance.

were able to visualize and quantitate the individuals who gave one or more responses.

Table III presents in ratio form the comparisons between the results shown in Table II, and also presents the statistical significances.

Table IV compares three ranges of F+ percentage in the alcoholics and normals.

Table II illustrates the significant preponderance of anatomy responses in the alcoholics and schizophrenics over the normals. As the number of anatomy responses increases, this difference is accentuated.

Table III shows that a statistically significant difference exists between the alcoholics and normals in the groups above two or more anatomy responses, with alcoholics showing a markedly greater number. Similarly, the schizophrenic anatomy responses outnumber the normals in all above one or more responses. The ratios of alcoholics to normals and to schizophrenics reveal that the alcoholic produces more than twice the responses of normals and nearly half the responses of schizophrenics, and therefore lies approximately midway between the normal and schi-

TABLE IV—Ranges of F+ Percentage* in Alcoholics and Normals

	Alcoholics			Normals	
F+% Range	Number of Subjects	In Percentage		Number of Subjects	In Percentage
Below 65%	19	29 %	(0.02)	4	11.1%
65%–80%	23	35.5%	(0.25)	17	47.2%
Above 80%	23	35.5%	(0.53)	15	41.7%
Total	65	100.0		36	100.0

* Figures in parentheses indicate the probability that the difference between the two groups is not the result of chance. Probabilities were obtained from critical ratios employing the standard error of a percentage (Garret, 1947).

zophrenic groups. The failure of statistical validity in the four or more response column of alcoholics to schizophrenics is probably due to the small number of records.

Table IV shows that the F+ percentage of alcoholics below the 65% level is statistically much greater than the F+ percentage in the normal group. No significant difference is seen between the two groups in the other two ranges.

Discussion

Assuming that the production of a greater number of anatomy responses reflects destructive tendencies and fears of bodily harm, the findings are consistent with clinical observations of the alcoholics and their intense difficulties in handling aggression. We believe these findings correlate with Bergler's (1949) concept that the alcoholic's drinking represents retaliation for what he conceives to be severe oral frustration in early life. Bergler believes the alcoholic is, through drinking, getting for himself (and *by* himself) what he feels he has been denied and that his defenses are intended to justify his aggression at the expense of reality.

The findings in the area of the F+ percentage are indicative of the alcoholic's failure of critical control concerned with reality testing. Rappaport (1946) believes that a drop below the minimum of the F+ percentage level (65%) should be expected among the neurotic group only among neurasthenics; and that schizophrenics, preschizophrenics, and poorly preserved obsessive-compulsives tend to fall below this norm.

It is our impression from our findings regarding the F+ percentage and anatomy responses that there is a large group of alcoholics who show a level of functioning consistent with preschizophrenic and schizophrenic levels.

The present paper is not designed to present a classification of the alcoholic, but the findings are felt to be a reflection of the clinical observation that there is a large number of alcoholics who present features of a group somewhere between the neurotic character disorders and the schizophrenic reactions (Gottesfeld, n.d.).

In general, our Rorschach results and clinical observations indicate that the alcoholic, because of his difficulties in expressing aggression, continually needs to test reality, and usually solves this conflict through drinking. The possibility also exists that many alcoholics can only maintain the threshold of reality by turning their aggressive impulses toward themselves.

Summary and Conclusions

1. A comparative study of 65 alcoholics, 36 normals and 36 schizophrenics from the standpoint of anatomy content and the F+ percentage revealed:
   a. That the alcoholics developed a percentage of anatomy responses that lay approximately midway between those of the normals and the schizophrenics.
   b. That the alcoholics revealed a marked tendency to fall below the minimum F+ percentage range of 65%.

2. The results indicate the alcoholic's intense difficulty in handling aggression and in handling reality. It is felt that these difficulties may be closely interrelated.

3. It is felt that the findings indicate that there exists a large group of alcoholics who fall upon a gradient between the neurotic character disorders and the schizophrenics.

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We wish also to thank the following members of the Department of Psychology, Research Service, Worcester State Hospital for their providing us with the records of the normal and the schizophrenic subjects: Mr. Oscar Parsons (for his great help in statistics), Dr. Austin W. Berkley, and Marvin Waldman.

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BOOK REVIEWS

Oscar N. Myer, *The Language of Handwriting.*

This book is a good visual aid to the study of graphology. Unfortunately, however, the reader will have to look elsewhere for adequate treatment of the points so happily illustrated here. Altogether, it is difficult to view *The Language of Handwriting* as a serious attempt to teach graphology. The exposition is cursory and the method anachronistic in view of the research, experiment and clinical progress achieved since the early 1900s.

Myer clearly follows Klages in making the aesthetic quality of the writing the determining factor in interpretation. The problem of halo effect or psychological inaccuracies based on a priori judgments apparently trouble him little. His division of characteristics into two major categories: positive and negative with numerous listings under each category is in the same spirit. And it is every graphologist for himself as to which of the many possibilities applies in any one given case. This, too, is consistent with the kind of graphology that was practiced at the turn of the century.

Although Myer has obviously failed in providing a reasonably understandable manual for handwriting analysis, he has inadvertently given us an interesting historical record of one of the significant developmental phases through which graphology passed in its growth as a clinical tool.

ROSE WOLFSON

Klara Roman, *Handwriting: a Key to Personality.*

Klara Roman is chief lecturer in graphology at the New School for Social Research in New York City. Her recent publication, *Handwriting, a Key to Personality* is a very readable, interesting and informative book but if a distinction between information and instruction is valid, this book falls short of the claims for a "well organized, clear, simply worded survey of the methods and techniques used in handwriting analysis" made for it by the publishers. Indeed, the most conspicuous weakness of the book is its loose organization, which may derive from the practical attempt to produce a book that would be both inviting to the lay reader and scientifically acceptable to the professional.

Nominally, the book is divided into two parts, "Developmental Stages of Handwriting" and "Analysis and Interpretation," but much of the material within the chapters and subdivisions, especially the early ones, is frequently so premature, discrete or digressive as to interfere seriously with continuity of subject. An understanding of Part I, for example, depends so much on material found in Part II that the beginner, at least, would be better advised to follow a reverse plan of reading and start with Part II. In addition, Roman skips down many attractive sidepaths, which, while interesting, are also distractive from the main course of the book.

Once Roman gets into her subject proper, graphology, she often achieves unquestionable excellence, particularly when dealing with topics closely associated with her experimental interests and experiences. Here beginner and advanced student alike are likely to derive

much. Of special note are her sections on graphic indices of speed, factors affecting speed, handedness, pressure, and tension and release. In contrast, and regrettably, there is only suggestive reference to speech pathology and handwriting expression, another area of research in which Roman has specialized.

Her theory of expressive movement seems somewhat over simplified, implying a one to one relationship between handwriting and speech, speech and gait, handwriting and gesture, etc. If we have learned anything about human behavior it is that *consistency* and *similarity* are not necessarily the same. Allport hurdled this difficulty by referring to "congruence" for characteristics that seemed to contradict the integrity of the personality.

This tendency towards oversimplification runs throughout the book, with varying degrees of benefit to the beginner. It is all to the good when applied to her method of analysis, which employs a worksheet as a mechanical aid. By and large, most reputable graphologists consider the same indices for interpretation even though they shift them under different headings or descriptive terms. Roman places indices under three primary components: *movement, form* and *arrangement,* in an earnest effort both to objectify and simplify the analytical procedure. Points of overlap on the worksheet, as with *expansion of movement* subsumed under *movement* then considered as *zonal proportion* under *arrangement,* suggests that the simplicity is more apparent than real, but as a "skeletal model," so recognized by Roman herself, it should help discipline subjective judgment.

Although Roman takes a dim view of Klages' theories and speculations, her theory of tension and release, directly or indirectly, like that of many another graphologist, draws blood from this main German artery of thought which laid the foundations for the psychology of expressive movement. An active point of departure, however, not only from Klages but also from Saudek, Lewinson and others who follow him in this special practice, is the use of the school model as her standard instead of an aesthetically "superior" form. In this reviewer's opinion, there is much in research to confirm the essential logic of Roman's "norm."

The symbolism underlying Roman's orientation follows the traditional tri-division of space into above, center, below, animated by Pulver's psychoanalytic insights and elaborations. Generally, interpretations tend to follow those of other seasoned and expert graphologists although there are occasional differences as with *line direction* and *endings of words.*

But there are also new observations and assumptions, one of the more interesting referring to signatures. Contrary to the thinking of many other graphologists who believe signatures to be of only negligible usefulness for analysis because they are stereotyped through continual practice, Roman believes that because the signature is mastered earlier than the rest of writing, it tends to reflect, more truly, repressed or rationalized infantilism. Similarly, it more readily mirrors creative or imaginative powers, and thus can tell us much concerning the dreams, realized or otherwise, of the writer. Roman correctly cautions against independent analysis of the signature, Wolff's encouragement to the contrary notwithstanding. The basic meaning of a signature cannot be

determined without study of a longer text by the same hand.

At the close of *Handwriting, a Key to Personality,* this reader thought that the main purpose of the book, graphological instruction, was only partially achieved because of the many incidental objectives followed. The book consequently is more definitive than pedogogical, and as such is of greater usefulness to students of comparative graphology than to beginners in this field.

ROSE WOLFSON

Frank Victor, *Handwriting: A Personality Projection.* Springfield, Illinois: Charles C. Thomas, 1952. American Lecture Series Monograph No. 96.

"The changing slant often found in children's handwritings indicates that they cannot decide whether to turn to their father or mother for advice or warmth." This statement by Dr. Victor admittedly gives us a new "slant" on the age-old and sometimes very humorous problem of not knowing which way to turn. Unfortunately, though, the quotation, along with many similar pronouncements, also leaves the reviewer with a rather squirmy feeling in trying to evaluate the book. Assumptions which localize the Mother at the left side of a sheet of paper and the Father at the right are sufficiently intriguing to warrant some independent evidence. Instead the author, following the tradition of earlier works on handwriting, implicitly asks us to accept on faith what may be remarkable revelations. This will be difficult for some readers to do.

The reviewer felt especially let down because the early pages of the book are liberally sprinkled with comments concerning the need to make graphology "scientific," the fallacy of applying pat interpretations, the desirability of training psychologists in the analysis of handwriting, and so on. The method which Victor advocates to accomplish such noble objectives is called "Basic Graphology." The latter system emphasizes the point that handwriting is a symbolic utilization of movement in space. Fundamental are the concepts of release, tension, and depth. Instead of trying to answer "What does this loop or hook mean?" Victor prefers to pose the question "How did this loop or hook originate?" In the author's words, the system "coordinates all the details of handwriting by recognizing in them a common basis for interpretation—movement."

Besides organizing and unifying the content of handwriting analysis, Basic Graphology also neatly solves the problem of how to interpret handwriting psychologically. This *tour de force* is achieved with startling simplicity, merely by separating Basic from Applied Graphology. The former "deals only with the dynamic elements of handwriting and leaves the interpretation of these elements to Applied Graphology . . . " Thus Basic Graphology stands aloof from specific psychological theories, which are relegated to the applied realm. In fact the author amply demonstrates the versatility of his Applied Graphology by interpreting the same handwriting sample according to the theories of Jung, Kretschmer, Sheldon, and Horney! This solution to the problem of handwriting interpretation struck the present reviewer as ingenious but confusing. Logically it appears to beg the question. Granted the importance of techniques to analyze

handwriting, the essence of graphology nevertheless must lie in psychological interpretation. Any separation of the two seems highly artificial.

The book is clearly written and relatively easy to follow, except for some minor difficulty in trying to locate the appropriate illustrative figures. One may question the author's decision to concentrate on a few rather than a broad range of illustrative materials, but again this is not a serious objection. A noticeable omission in the bibliography, however, is Sonnemann's *Handwriting Analysis,* which has been widely read. In summary, Victor's monograph represents a sound contribution to methodology in handwriting study, but falls short of its mark with respect to the alignment of graphology with science.

GERALD S. BLUM, PH.D.
University of Michigan
Ann Arbor, Michigan

Robert I. Watson, *The Clinical Method in Psychology.* New York: Harper & Bros. 1951. $4.50.

This 760 page volume, according to its author, is intended as "an advanced undergraduate or graduate text." It consists of a comprehensive survey of the more commonly used diagnostic and therapeutic procedures with some attempt at generalization and evaluation. The author fails to do himself justice when he states at the onset that the discussion of various tests and therapeutic methods is to be uncritical. In fact, one of the major contributions made by this volume is a critical appraisal of some of the common techniques in clinical psychology. At those points in which the book becomes uncritical, it fails to contribute very much to existing knowledge.

The bulk of this book (about 500 pages) is devoted to diagnostic tests and procedures. Diagnosis is broadly defined and closely related to prognosis and treatment planning. The author begins by discussing case studies and pleading for a systematic organization of such data. A proposed outline is given. There is a brief discussion of observations and ratings with emphasis on quantification, another brief discussion about diagnostic interviews, and finally a good deal of discussion about various tests. The tests taken up in this book seem rather arbitrarily chosen, especially since many of those most commonly used are omitted. A good deal of space is taken up with a description of various tests and their rationale, which seems rather superfluous, as this material is available in its original form. Another good part of this section is taken up with quotations of various authors from their original works, to the extent that the reader is left to wonder what the purpose of reprinting them in the present volume might be. The best part of this section consists of a critical discussion of the reliability, validity, correlational properties, diagnostic usage, etc., of the various tests discussed.

The author shows a definite bias for some tests as opposed to others. One can see that the Wechsler-Bellevue is considered quite superior to the Stanford-Binet. In the realm of projective techniques a good deal of space is devoted to the Rosenzweig Picture Frustration Test and other tests originating from the author's colleagues at Washington University. The Rorschach Test, on the other hand, is barely mentioned. In spite of this, it must be granted that this section is well written, well organized, and most of the points are such that few clinicians would quarrel with him.

A comparatively brief section on psychotherapy is written at a much different level than the one on diagnosis. One can see that it is based not so much on personal experience but on a perusal of the work of other people. There is a good general discussion of the principles of psychotherapy and the role of diagnostic instruments in psychotherapy. In the ensuing discussion of various "schools," psychoanalytically oriented therapy and non-directive therapy play the starring role. Just two pages are devoted to what the author calls "eclectic" therapy. Whereas the description of the various schools of thought is well written, there is nothing in this book which cannot be found elsewhere. The material in this section would be incomprehensible to anyone not having a theoretical frame of reference based on clinical experience. The section on group therapy seems inadequate, since it fails to discuss the basic principles of group dynamics underlying all methods of group therapy. At the end of this section there is a brief discussion of technique like occupational therapy, recreational therapy, and bibliotherapy, which might warrant more intensive study on the part of the clinical psychologist.

In conclusion, it is the opinion of the undersigned that Dr. Watson has written a book which might well be used as a part of a general introductory course in clinical psychology. It is well written, the ideas in it are organized and carefully thought out. In parts there is a keen appraisal of some of the problems in the field. However, the volume is weak in many regards and shows a number of different kinds of theoretical and practical biases. Since many such volumes are being written at the present time, each one should be carefully scrutinized in order to see whether it deserves the attention of the beginning student in clinical psychology, who is already overloaded with ideas and projects.

WALTER G. KLOPFER, PH.D.
Chief Psychologist
Norfolk (Nebr.) State Hospital

GENERAL NEWSLETTER

This issue of the *General Newsletter* contains items about the Draw-A-Person, the Mosaic test, some news from a British Rorschach group, and information about two foreign Rorschach journals.

Draw-A-Person. Earl X. Freed, of the Psychology Department, Worcester State Hospital, and William M. Cruickshank, of the School of Education, Syracuse University, have suggested a modification in the administration of the Draw-A-Person test. This suggestion, reproduced in its entirety, is as follows:

> Some of the most important diagnostic signs in the analysis of the Draw-A-Person test as a projective technique are retracings and erasures. It is hypothesized that such corrections are indicative of conflict and anxiety on the part of the subject and, more particularly, that those areas where the aforementioned alterations are made are the specific areas of conflict and sensitivity.
>
> In the usual procedure of administration, the examiner, in addition to noting the order in which the parts of the body are drawn, etc., also records areas which the subject erases or reinforces. This is often an inadequate method for recording and also the exact positions of such corrections are frequently very vague.
>
> In an effort to correct for this, the authors have experimented with the procedure of inserting a piece of pencil carbon paper and another piece of bond under the paper on which the subject makes his drawing. The three sheets are then stapled together with four staples, one in each corner, so that they do not slip when the subject is drawing.
>
> This technique has proved quite rewarding. The drawing made by the carbon is, of course, an exact reproduction of the subject's initial effort but, in addition, the erasures are clearly shown by the carbon. There is thus an outstanding pictorial representation of the areas of anxiety. Furthermore, the original drawing before erasure is clearly demarcated. A last advantage of the technique is that very often the erasures themselves form very symbolic configurations which lend themselves to interpretation.
>
> A minor disadvantage of this practice is that there may be a few smudges on the periphery of the carbon paper due to pressure by the subject's hands. However, on the whole, the use of a carbon copy has many advantages over the use of an original drawing in an evaluation of the projective data.

Mosaic Test. Grune and Stratton, publishers, have sent us some information about a brief introduction to the Mosaic test by Dr. Margaret Lowenfeld. This four page publication can be obtained from them for fifty cents. The pamphlet describes the test materials, cites the several attitudes on the part of the subject which should be evaluated, and includes the four aspects of personality which can be revealed through use of the Mosaic test — the objective ability of the subject to perceive and manipulate objects, the willingness and ability of the subject to relate himself to external *material*, the characteristics of the subject's usual handling of situations in life, and the relation of the subject to what he has made. A short bibliography is also included.

British Rorschach News. J. M. Williams, Editor of the *Newsletter* of the British Rorschach Forum, wrote concerning three of their recent meetings as follows:

> In November, 1952, Dr. G. B. Barker presented: Four Rorschach Records and Case History of a Male Schizophrenic Patient. The records had been obtained on admission to the hospital, after sixty-two insulin comas, after leucotomy and after the patient's discharge from

the hospital. The changes in the Rorschach records were discussed and the findings correlated with the clinical state. Finally, a brief review of the evidence of schizophrenia in the four records was given and the content analysed in relation to his past history.

At the December meeting Miss Alcock presented: A Study of Mother-Child Relationships, Using the Rorschach Technique, with a Pair of Identical Twins, One Schizophrenic and Other Healthy. The Rorschach records of a pair of twenty year old identical twins of superior intelligence, one twin being a schizophrenic hospital in-patient, and the other doing well in professional employment, were described. In both twins the case histories showed a very close similarity of experience which included a traumatic break in the mother-child relationship during infancy. There was also remarkable similarity in both Rorschach psychograms, that of the "healthy" twin being strongly schizoid in character. In addition, the twins gave some identical responses, unusual in content. Analysis of both records was presented with special reference to both psychogram and content as indicative of attitudes in human relationships . . . It was suggested that analysis of relationships as expressed in Rorschach test reactions could be used with profit to account for varying psychopathology in personalities otherwise similar.

In January, 1953, Dr. A. Kaldegg presented: German and English Personality; a Comparative Study Using Projective Techniques. This study was undertaken to see whether national differences could be established experimentally and whether the techniques used were adequate for the task; if so, to see what these differences might be. Twelve groups were tested, six in Germany and six in England. (Altogether 450 people were tested). The groups consisted of grammar school boys and girls at two age levels and of men and women teacher training students. They all undertook a group Rorschach test, free association method and Raven's Controlled Projection test adapted for group purposes. It was found possible to establish experimentally in a controlled situation national differences between the English and German groups. Of the variables, nationality, age and sex, that of nationality proved dominant. A survey of the main Rorschach findings was given and it was shown how the tests proved complimentary to each other.

Foreign Rorschach Journals. A new journal devoted exclusively to the Rorschach test is being published in France. It is the *Bulletin du Groupement Francais du Rorschach.* It is to be published at 41 rue Gay Lussac, Paris. The first issue contains the following original articles: N. Canivet: Apport d'une formule de tendances au type de resonance intime; J. Dublineau: Quelques points speciaux du probleme des kinesthesies; A. Morali-Daninos: Relations reciproques des methodes projectives; and M. Violet-Canil: Resultats donnes par le test de Rorschach avant et apres lobotomie.

Another new foreign journal, *Rorschachiana,* (subtitled, An International Review of Rorschach and Other Projective Techniques), is being published by Hans Huber of Berne and Stuttgart. It is distributed in the United States by Grune and Stratton. It is a quarterly. The publishers state as follows:

> The First International Rorschach Congress voted to found an International Society for Rorschach and other projective methods and a journal corresponding to the Society's aims. The new *Rorschachiana* is intended to provide an international forum for research in personality, assisting in the exchange of facts and theories between serious investigators of all lands and schools. The foremost place is accorded in this journal to the Rorschach as being the eldest, best studied and best validated of all projective methods. The journal also wishes to assist, however, in subjecting the continually emerging new methods to thorough examination and criticism as well in furthering such of them as prove, or already have proved, their worth.

The Editor of *Rorschachiana* is Dr. K. W. Bash of Zurich. The contents of the first issue include the following articles: M. Bleuler: After Thirty Years of Clinical Experience with the Rorschach Test; M. Loosli-Usteri: L'homme "normal" vu a travers le test de Rorschach; D. Kadinsky: Tiefenpsychologische Bedeutung der Erfassungstendenzen im Rorschach-Test.

THE TAT NEWSLETTER

VOL. VII, NO. 2 JUNE, 1953

EDWIN S. SHNEIDMAN, EDITOR
V. A. Neuropsychiatric Hospital
Los Angeles 25, California

We turn first in this issue to the classified ad section of the *TAT NL*:

WANTED — Information from anyone who has applied Reuben Fine's scoring scheme to thematic materials. Please communicate with Dr. Fine, 789 West End Avenue, New York 25, New York.

INTERESTED — Dr. Leopold Bellak, 1160 Fifth Avenue, New York 29, New York, has "for several years been particularly interested in the fact that a good number of adolescents and adults of average or higher intelligence, who are not psychotic, fail to recognize the violin in Picture #1 of the TAT." Would other TAT workers who have had the same experience please correspond with Dr. Bellak "to find out what is behind this puzzling phenomenon?"

HELP WANTED — Verbatim TAT transcripts obtained from college graduates coming from varied vocational fields. "Obtaining such transcripts would aid in the progress of a research of fantasy production of selected adults." Please communicate with Dr. Theodore Carlton, 521 Mandana Blvd., Oakland 10, California.

NEEDED — TAT (and other test materials) on individuals who subsequently committed suicide. Please get in touch with Dr. Norman Farberow, VA Mental Hygiene Clinic, 1031 South Broadway, Los Angeles 15, California.

Crime News. Dr. Franco Ferracuti, of the Institute of Psychology, University of Rome, and Prof. Giovanni de Vincentis, of the Institute of Forensic Medicine, University of Rome, both of whom are with the Centro Criminologico di Roma, have written about a rather extensive research they are doing using normal and criminal subjects. The latter are mostly "neurotics and psychopathic personalities . . . at the Rome Criminological Center." The battery of tests is impressive: "As a rule, our subjects go through a battery of tests including the following: Progressive Matrices, Porteus Maze test, Rorschach, TAT, MAPS, Szondi test, Draw-A-Person, Word Association (Rapaport's list) and the P-F study. All the subjects are also studied from a clinical point of view by different experts, and we collect data ranging from electroencephalography to examination of the endocrine system and narcoanalysis." Criminals of Rome beware!

Autobiography and thematic tests. The problem of the relationships between thematic test content and autobiography is an interesting and important one. A student in one of my classes at Los Angeles State College, Mr. Neil Enochs, has begun to nibble away at this area by asking subjects to give stories with the MAPS materials — the regular instructions — and then asking the same subjects to give *autobiographic* stories to the same backgrounds. (With every other subject he alternates the sequence.) The same is planned for the TAT. The tentative results have thrown some interesting light on the psychological defenses used in the regular MAPS stories, when these are compared with the autobiographical stories for the same background; the comparative data are also relevant to the problem of the *postdictive* validity of the test. At this stage he is more or less playing around with the idea and both he and I would welcome exchange of ideas or experience with anyone who would correspond with us. Mr. Enoch's address is 5116 Almaden Drive, Los Angeles 42, California.

Unpublished research on the TAT. The Committee on Diagnostic Devices of Division 12 of the

APA is preparing a report on unpublished research including the TAT. It is not the purpose of this note to preview the report except to state that several very interesting studies using the TAT are either in progress or have been completed but not published. The attention of *NL* readers will be directed to the Committee's report when it is published.

For women only. From Holland, we received from Dr. D. J. van Lennep and R. H. Houwink a preliminary report on the Female Four Picture Test (FFPT). Those of us who have used the FPT will be interested in this modification for female subjects. The FFPT is made up of the following four pictures:

I. Sitting-room, in which a woman is bending over a cradle with a little baby. A little boy is sitting on the floor playing with some toys.

II. Bedroom with old-fashioned furniture, including a dressing table with a mirror.

III. Pond in a wood, where a female figure (with only her back visible) stands dreaming.

IV. Office scene. In the foreground are a man and woman sitting at desks, leaning toward each other talking, while a second male figure, who is sitting across from them, is watching them.

The FFPT grew out of van Lennep's studies — some of which are to be reported in the near future in the *Journal of Projective Techniques* — on the "roletaking ability," of male subjects, i.e., the degree to which males could give stories to the FPT with a *feminine* principal figure.

With the restraint that has characterized the development of the FPT, van Lennep states: "The FFPT will be published when sufficient data have been collected for the manual. However, for research a copy is available with instructions. Address Dr. D. J. van Lennep, University of Utrecht, Utrecht, The Netherlands." The price is five dollars and the check should be made out to the Netherlands Foundation for Industrial Psychology (Nederlandsche Stichting voor Psychotechniek), Utrecht, The Netherlands.

ANNOUNCEMENTS

FLORENTINE HACKBUSCH MEMORIAL

The executive Committee of the Society for Projective Techniques has voted to establish a memorial to our late secretary, Florentine Hackbusch, in the form of subscriptions to The Journal of Projective Techniques, to be sent to a number of foreign universities at present without access to the Journal.

The Society itself is planning to send approximately 25 copies for a ten year period. In addition, certain individuals have indicated a wish to send subscriptions to various universities which they will designate, for periods ranging from two to five years. Anyone wishing to contribute to this memorial fund is invited to do so. Correspondence with reference to this should be addressed to the undersigned. This should include choice of university (if the contributor prefers to make his own choice) and length of time that the subscription is to run.

PAULINE G. VORHAUS, ED.D.
Chairman of the Ad Hoc Committee
27 West 86th Street
New York 24, N. Y.

WORKSHOP

The 1953 annual work shop in projective drawing (emphasis will be given to the H-T-P) as a technique for personality evaluation and diagnosis will be conducted July 21 to 24 at the New York Psychiatric Institute by Emanuel F. Hammer and Selma Landisberg. To apply for admission write to Dr. Emanuel F. Hammer, 220 West 98 Street, New York 25, N. Y.

REGIONAL REPORTS

Michigan Regional Division
(Michigan Society for Projective Techniques)

I. Meetings

A. November 1952
The following officers were elected:
President: Max L. Hutt
Secretary Treasurer: Priscilla Alden
The council of the Regional Society includes these officers and the following comtee chairman:
Program: Gertha Williams
Membership: Samuel Kellman
Bulletin: Steven Vandenberg

B. December 1952
Paper entitled A PSYCHOANALYTIC STUDY OF LATENCY AND ADOLESCENCE was presented by Maizie Gurin. Discussant was Max Hutt.

C. February 1953
The program was devoted to an extensive presentation of "Current Problems and Research in Projective Theory and Technique in the Detroit VA."
Chairman: Max Hutt
Karl Pottharst:
"Utilization of Projectives in the VA Mental Hygiene Clinic."
Herbert Silverman:
"Utilization of Projectives in a General Medical Setting."
Alvis Caliman:
"Utilization of Projectives in Vocational Re-

habilitation Education."

Bernard Stotsky:
"Current Research on Projectives in the Detroit Regional Office."

II. Future Plans.

The Society expects to hold regular bi-monthly meetings at which a central problem of general interest (concerning training problems, case material, research) will be presented.

A luncheon meeting was arranged for April 17th in conjunction with the annual meeting of the Michigan Academy of Science, Letters, and the Arts.

A Bulletin, to be issued bimonthly, is expected to have its first issue in March.

The annual meeting, planned for late October or November, will have a program involving invited papers.

PRISCILLA ALDEN
Secretary Treasurer

Montreal Group

Report for the academic year October, 1952 to May, 1953.

The group met monthly from October to April inclusive, on the third Tuesday of each month, in facilities provided by the Department of Psychology, McGill University, for the discussion of business and presentation of selected papers, the latter as follows:

October, H. Lehmann, M. D. – Yearly Developmental Changes in Rorschach and C.A.T. in a child between two and eight.

November, H. Mindess, Ph.D. – Interpretation of Symbols in the Rorschach.

December, J. Howard, Ph.D. – A New Type of Inkblot Test.

January, G. Shane, M.A. – Discussion of Rorschach Findings in Amnesic Patients.

February, Blossom Wigdor, Ph.D. –Autokinetic Phenomena in Clinical Investigation.

March, F. Lapointe, M.A. – Variance of Response on Multiple Presentation of the Szondi Test: Review of the Literature.

H. Dörken jr. Ph.D. – The Rorschach Method as an Experimental Instrument: A Critical Review of Experimental Studies.

April, June Pimm, M.A. – Rorschach findings of Asthmatic Patients Before and After ACTH.

The regular meeting for May was cancelled since collaboration with the Canadian Psychological Association was arranged for the latter's annual meeting (May 28-30, Kingston, Ontario). A double session on projective techniques was presented with Dr. H. Dörken jr. as chairman. Papers by members of the Montreal Group were as follows:

J. W. Howard, Ph.D. – Construction of an Ink Blot Test.

S. Gerald Shane, M.A. – A Short Form of the Rorschach.

Clemont Thibert, L.Ps. – Le Rorschach: Instrument d'etude de la deficience mentale.

Blossom T. Wigdor, Ph.D. – A preliminary Study of DAT in a Group of Physically Handicapped Individuals.

Fern J. Cramer, M.A. – Personality Changes and Figure Drawings: A Case treated with ACTH.

H. Lehmann, M.D. & F. Fraser, R.N. – Film strip "Clinical Evaluation of Finger Painting in Psychiary."

Presentation and Commentary by H. Dörken jr., Ph.D.

Francois Lapointe, M.A. – Variance of Response on Multiple Presentation of the Szondi Test.

Total membership has risen to 53, including 16 student and 6 affiliate members. Fourteen of the group are members of the parent society,

this representing 70% of the total membership in Canada of the Society for Projective Techniques. Prospective members are currently being encouraged to join. The present executive is: chairman, Dr. Blossom Wigdor, Psychologist, Queen Mary Veterans Hospital, Queen Mary Road, Montreal, Quebec, Canada; secretary-treasurer, Mr. S. Gerald Shane; programme and membership committee, Dr. H. Dörken jr., Dr. Gabrielle Clerk, Miss Fern Cramer.

HERBERT DORKEN JR., PH.D.
Representative for Canada

Southern California Division

Report on 1952-1953 season.

The Southern California Division held three meetings this season. At the first meeting, Gertrud Baker, V.A. Hospital, Long Beach, spoke on diagnosis of organic brain pathology. The meeting was limited to members of the Society and was attended by 25 to 30 people.

The second meeting (March 13, 1953) presented a symposium on the Rationale of Rorschach Scoring. Virginia Armon, D. Welty Lefever, and W. Marshall Wheeler spoke from the viewpoints of the clinician, the research worker, and the personality theorist, respectively. Walther Joël acted as chairman and Bruno Klopfer as integrator. This second meeting was open to persons who meet the requirements for at least Affiliate membership. Notices together with statements of membership requirements were sent to the heads of clinical psychology departments at six local universities and colleges. As a result we had an attendance of about 60.

The third meeting (May 1st, 1953) was even more successful. David Shapiro of Austen Riggs Center spoke on Special Problems in Testing Borderline Psychotics. Announcements had gone to the six clinical psychology departments and to some of the State institutions in the vicinity. Attendance exceeded all expectations. 200-250 people came to the meeting. A dinner to precede the meeting had been arranged at 36 hours notice. 43 attended the dinner and heard Robert Holt of Topeka report on the use of projective techniques in the selection of psychiatrists. The Southern California chapter of Psi Chi served refreshments after the meeting, thus rounding out a most successful evening.

The method described here can be highly recommended to other regional divisions as a means of recruiting new members. Thus at the second meeting over 20 people signed a request for application blanks.

REPRINTS

CASE OF JAY: A symposium sponsored jointly by the Society for Projective Techniques and the Division of Clinical and Abnormal Psychology of the American Psychological Association.

Part 1: Includes protocols of the subject's performance on Wechsler-Bellevue, Make-A-Picture-Story Method, Rorschach, Thematic Apperception, Graphic Rorschach, Four Picture, MAPS, Word Association, Sentence Completion, Mosaic, Draw-a-Person and MMPI Tests.

Part 2: Includes interpretations of the Wechsler-Bellevue by Samuel B. Kutash, the Make-A-Picture-Story by Edwin Shneidman, Rorschach by Pauline Vorhaus, and the Thematic Apperception by Robert Holt. In addition there is an integrative discussion by John Bell, report of the discussion, and some notes on the therapy and dream material prepared by the therapist of the subject.

CASE OF GREGOR: There are still a few copies of Part 2, Interpretation of the tests in the Case of Gregor.

ORDER BLANK

Society for Projective Techniques and Rorschach Institute, Inc.
609 West 196th Street
New York 34, N. Y.

Enclosed are $.....for the following:

.....copies of Part 1, Case of Jay—Test Protocols at $0.50.

.....copies of Part 2, Case of Jay—Interpretation at $0.50.

.....copies of Part 2, Case of Gregor—Interpretations at $0.50.

Name: (Please print).....

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MONOGRAPHS

No. 1—PROJECTIVE TECHNIQUES AND PSYCHOTHERAPY: Examination of a therapy process through the use of the Projective Motor Sequence and Rorschach Technique by William H. Lundin. This is a study in which the Rorschach was administered six times and the Projective Motor sequence three times during the course of intensive therapy (100 hours). The presentation includes a detailed description of the patient's behavior, the treatment situation, and interpretations and comparisons of the test results as they reflect the therapy process. Price $1.50.

No. 2—A MANUAL FOR THE MAKE-A-PICTURE-STORY (MAPS) METHOD: by Edwin Shneidman. This monograph is a manual which presents detailed instructions for the administration of the MAKE-A-PICTURE-STORY Method and suggestions for interpretation. It includes numerous illustrations, several protocols, and a detailed analysis of one case. Price $2.50.

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